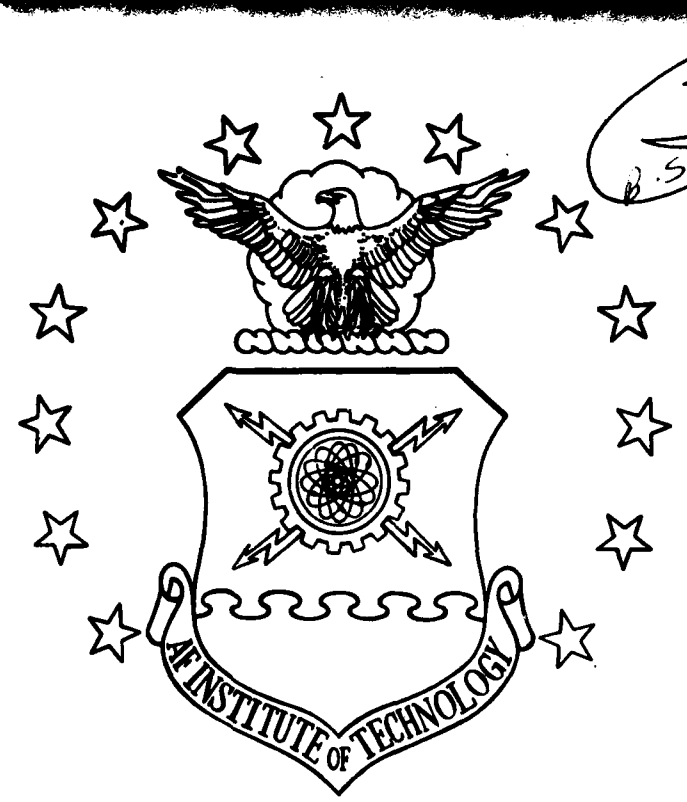

UNITED STATES AIR FORCE

AIR UNIVERSITY

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Wright-Patterson Air Force Base, Ohio

A CASE STUDY: ENVIRONMENTAL IMPACT OF THE HAMILTON AFB, CALIFORNIA BASE CLOSURE.

Michael R. Patrick, Captain, USAF
Gary L. Tucker, Captain, USAF

AFIT — LSSR-32-77A

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DOD has begun to establish a data base which can be used to accurately assess the environmental, economic, and social impacts of its installations on neighboring communities. The researchers examined the closure of Hamilton Air Force Base in an attempt to determine what officially recorded data exists and is available to DOD which may be used for determination of significant changes which may occur in the neighboring community as a result of a military installation closure. The researchers applied a time series forecasting methodology to the collected data in order to identify when significant changes occurred in the environmental indicators and the neighboring community. The research revealed that there is significant amounts of data available for analyzing the Hamilton AFB closure and the time series forecasting methodology applied shows promise as a useful tool in determining where significant changes occurred. The impact analysis revealed no significant environmental impact on the neighboring community, Marin County, as a result of this closure. The researchers concluded that further validation of the methodology is required before practical application of this technique can be made to accurately predict which environmental, social, and economic indicators will significantly change when a military installation closure transpires.

LSSR 32-77A

A CASE STUDY: ENVIRONMENTAL IMPACT OF THE HAMILTON AFB, CALIFORNIA BASE CLOSURE

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Facilities Management

By

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This thesis, written by

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Chapter 1

INTRODUCTION

The military services are complex organizations which form a subsystem of a much broader system, the environment. With hopes of improving an organization's management, the open-system view of management suggests an organization should understand the interactions between itself and the environment (12:131). With the Congressional imposed reduction in military spending, the closing of military installations are becoming more necessary to the military services in order to curb costs and still continue their dynamic missions (14:2). Since the installations are a part of the environmental system, the impact of an installation closure should be investigated as to its effects on the surrounding environment of the neighboring community.

Statement of the Problem

The Department of the Air Force has been unable to predict the environmental impact of military installation closures on the neighboring community because it lacks sufficient knowledge to identify, measure, and determine the significant environmental factors. Installation closure effects on the surrounding environment may be

categorized into three separate areas of study: natural and physical, economic, and social (10:36-38). Analysis of empirical data representative of these three areas may provide the basis for constructing a predictive model for forecasting the total environmental impact of a proposed installation closure.

Justification

As established by the National Environmental Protection Act (NEPA) of 1969, the Federal Government has a continuing responsibility to improve and coordinate federal plans and programs so that each generation, acting as trustee of the environment for the succeeding generation, can insure all Americans safe and healthy surroundings (25:1). Section 102(2) of NEPA states that agencies proposing "major federal actions significantly affecting the quality of the human environment" should use techniques which insure the "integrated use of the natural and social sciences and the environmental design arts" in all decision-making (25). NEPA requires each federal agency to prepare a statement of environmental impact in advance of each major action contemplated by that agency which may significantly affect the quality of the human environment (25:2).

Since NEPA became law in 1970, the Air Force has been actively involved in developing environmental impact assessments and statements concerning base closures. The

Air Force has designated the Director of Civil Engineering as the Air Staff office of primary responsibility for all environmental protection actions to comply with NEPA (26:4). A policy letter by Major General Robert C. Thompson, Director of Engineering and Services, Headquarters USAF, stated:

> The identification and development of methods and procedures which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations [23].

In response to the environmental impact assessment responsibilities required by NEPA, the Air Force Civil Engineering Center (AFCEC) has been tasked with a continuing development of procedures and methodology for predicting the environmental impact of proposed base closures. The proposed research effort is part of this continuing program.

Background

Actions to terminate, consolidate, or reduce activities at 80 military installations were announced by the Secretary of Defense on November 18, 1964. The announced actions were sweeping and dramatic to the public because of their apparent implications (7:4). The community reactions to the announcement typically were: (1) disbelief, (2) efforts to rescind the decision, (3) panic, (4) resignation to the inevitable, and

(5) decision that the closure was probably, in the long run, advantageous for the economy (7:5).

Over 80,000 civilian positions were affected, about four-fifths were to be abolished and another fifth were to be transferred to other installations (7:iii). Addressing the issue of community concern, a study submitted by Daicoff and others (7:4) to the United States Arms Control and Disarmament Agency in April 1970 concluded there was significant economic impact due to the closures upon several of the neighboring communities although less severe than those anticipated by the public.

Daicoff and others (7:3) concentrated on the economic impact to the neighboring communities resulting from the base closures. To gain a true perspective of the overall environmental impact to a community resulting from a closure, all three environmental factors must be examined. Until the passing of the NEPA, the natural and physical, economic, and social factors were examined independently and seldom consolidated to assess the overall environmental impact.

Natural and Physical Factors. The NEPA requires the President to report to Congress annually on:

> . . . the status and condition of major natural, man-made, or altered environmental classes of the Nation: including but not limited to, the air, the aquatic, including marine, estuarine, and fresh water, and the terrestrial environment, including but not

> limited to, the forest, dryland, wetland, range, urban, suburban, and rural environment; . . . [10:3].

The Corps of Engineers attempted to improve the quality and utility of their environmental impact statements on water projects by studying 234 such statements. As a result the Corps developed a detailed list of the environmental indicators which need to be analyzed for water projects, including inundation, thermal stratification, and bank erosion (17:1; 18:4-13).

The Environmental Protection Agency (EPA) has compiled a list of natural and physical environmental indicators contained in Studies in Environment, Vol. II. The natural environmental indicators are air quality, water quality, radiation, and noise. The physical environmental factors are housing, facility use, transportation, public services, aesthetics and land use (encroachment) (4:13). Although these indicators are not completely inclusive of EPA's indicators, they are the most often identified indicators in literature and offer data collection opportunity.

Economic Factors. New techniques are being developed to more accurately predict the economic impact a base closure will have on the local community. A report prepared by Lynch (14) in April 1969 for the Department of the Air Force stated that:

> The key to evaluating the impact of base closures on local communities is the recognition that cities with nearby bases have a demonstrably higher ratio

> of service or support-oriented employment to manufacturing and mining employment than other communities of comparable size without nearby military bases [14:304].

Lynch (14:305) stressed the necessity to determine the employment changes in the support services in order to determine the impact of a military installation on the local community.

Lynch (14) also examined the impact of civilian personnel displacement, the impact on the housing market, retail sales, and local military purchases. Multipliers were computed to estimate the loss of jobs in the community due to the relocation of both civilian and military employees. The net jobs lost by the relocation of a single civilian or military employee was 2.58 and 0.662, respectively (14:XIV). The effect on the housing market varied with communities; but in all cases very little sales activity occurred within six months after the closures and the housing appraisal values decreased as much as 13.9 per cent (14:XIV). The effect on retail sales and local military purchases after base closure was negligible (14:XV,322,326).

To analyze the economic impact a base closure has on the local community, large amounts of economic data both about the community and the base must be available. Both Lynch (14) and Daicoff and others (7) concluded there was a definite lack of knowledge available to the Department

of Defense (DOD) reflecting the economic impact of a military installation closure. The data required was not available in community and military records (1:6,8).

The Computerized Environmental Legislative Data System and the Economic Impact Forecast System (EIFS) computer based data systems have been designed by the Construction Engineering Research Laboratory to quantify the environment laws and statutes and predict the economic impact of installation changes in the surrounding community regions (29:2). EIFS obtains socio-economic data from the census, governmental sources, and Standard Metropolitan Statistical Areas (SMSA) to forecast potential economic impact (29:15). EIFS categorizes the impact by "order of magnitude" and in terms of "insignificant, significant, or substantial [29:20]" which indicate the economic stresses placed on the community as a result of the change.

Aerospace Defense Command (ADCOM) recently completed an environment impact assessment study, "Environmental Assessment for Joint Surveillance System (JSS)." The ADCOM report stated that individuals should apply

> . . . subjective judgments regarding the particular level or levels of economic and social change beyond which a community may anticipate a serious effect from loss of jobs, population, and spending [24:9].

Values are to be assigned to the subjective evaluations in regard to the degree of significance of the impact. An

ADCOM impact prediction scale was developed and is presented in Table 1 (24:11).

Application and usability of the ADCOM predictive model has not been proven due to

> . . . the lack of substantial prior correlation data and the necessity to make broad generalizations and assumptions regarding the significance of Air Force contributions toward the well being of communities surrounding each installation [24:20].

The present Air Force efforts of collecting impact analysis data centers around the TAB A-1 of the annual Air Force Comprehensive Plan (28:2). The preparation of the TAB A-1 requires the Air Force installations to annually collect data concerning the economic interrelationship between the base and community, e.g., military/civilian payrolls, Federal aid, base construction and local purchase expenditures, housing market statistics, employment statistics, economic base of the community, etc. Additionally, TAB A-1 requires each Air Force base to annually predict its economic impact on the local community (27:6).

Social Factors. A study of the social environment and the impact of a base closure would deal with people, their interrelated group activities, and their individual and group interests. The data gathered from such a study would vary as much as the people comprising the study group. According to Jain and others (11) any project which disturbs the environment will affect people and will

Table 1

ADCOM Impact Prediction Scale

Predicted Impact	Predicted Change (1%)		
	Population	Spending	Employment
Slight	$\leq$ 2.0	$\leq$ 2.5	$\leq$ 2.0
Moderate	2.1 - 5.0	2.6 - 3.5	2.1 - 4.5
Serious	$\geq$ 5.0	$\geq$ 3.5	$\geq$ 4.5

cause them to react to the disturbance. The effects may be direct and immediate or remote and gradual, but sooner or later people are somehow affected. The effects make it important for the impact analyzer to learn what sort of community, socially and politically, he is examining. The study asserts that the assessment of human response is a depiction of the social environment (11:140).

Solomon (20:5) maintained that while a nation as a whole may benefit from the shift of resources from old to new uses, the community directly involved in a base closure action is adversely affected. His research revealed that the community will largely base its attitudes and prospective feeling on knowledge of the leaders' attitudes. The local civic leaders, the press, and the populace determine the social reaction (20:20). Similarly, the Jain and others study group pointed out the capacity of an organization to generate broad support for its policies. The execution of these policies is directly related to how the community believes its quality of life will be affected, recognizing that people are inclined to fear that their way of life will be damaged or disrupted if the resource base upon which they depend is altered. Behavior can be greatly influenced by situations and confrontations which directly cause psychological stress. Anti-social behavior leading to conflict, crime, and accidents may be an

influence, especially where compound chronic psychological stress is involved (11:148).

Considerable research into identifying social indicators which can accurately portray society's stability has been accomplished recently. The study of social stability has been approached primarily from the point of view of community solidarity. The emphasis has been on determining the major divisional points among the community's citizenry and the strength of agreement or disagreement on various community issues (13:141).

Since there are many ways of examining the social environment, the variety of social indicators or Quality of Life (QOL) indicators (as they are called by the Environmental Protection Agency (EPA) is nearly unlimited (10:3). The EPA suggests that the QOL indicators should be selected and measured by the following points:

1. Review of the literature which specializes in social indicators and research focusing more specifically on the concept of QOL itself.

2. Definition of the QOL in relation to the literature review.

3. Identification of an indexing tool or formula for measuring QOL.

4. Identification and discussion of the factors involved in the QOL, their objective and subjective measurement.

5. Discussion of the analysis of QOL data which would be generated by the use of the measurement device defined in Point Three above.

6. Suggestions of policy implications and the utility of information generated (10:3).

Background Summary. Since a military installation is a part of the total environmental system, the impact of its closure can only be analyzed by investigating the affects it has on the natural and physical, economic, and social environmental areas. Present Air Force efforts are restricted in accurately assessing the impact due to the unavailability of data on the surrounding communities and bases. Present emphasis is being placed in the development of computer based systems which can quantify the data for the military base closure manager.

Scope

The proposed research will contribute to Phases I and II of four phases of an ongoing project to establish a forecasting model for predicting the overall impact of military installation closures on neighboring communities.

Phase I of the project is the search for data. In order to facilitate the identification and collection of data, the overall impact of an installation closure has been divided into the previously identified environmental factors: natural and physical, economic, and social. This

phase of the project will consist of individual case studies of various military installation closures in order to identify available data which may provide indicators of the overall impact of military installation closure on their neighboring community (22).

Phase II, the consolidation phase, will examine and consolidate the findings which were determined to be significant in Phase I. The data will be arrayed in matrix form by level of impact, size of installation, and size of community (See Figure 1) (22).

Phase III will be the validation phase. The consolidated data from Phase II will be examined for validity as estimators of the overall impact of military installation closures (22).

Phase IV, the incorporation phase, will utilize the validated data from Phase III in an attempt to develop a relatively simple forecasting model or procedure to enable the Department of Defense to predict the overall impact of military installation closures on neighboring communities (22).

The proposed research will attempt to measure the environmental impact of a medium sized base (Hamilton AFB, California) closure occurring in 1973 on a large neighboring community (Marin County, California, near San Francisco).

FIGURE 1

SIZE OF COMMUNITY

SIZE OF BASE	Small	Medium	Large
Small			
Medium			X
Large			

X = Hamilton AFB, California

Objectives

The proposed research is aimed at fulfilling the following objectives:

1. Develop a comprehensive list of natural and physical, economic, and social environmental factor indicators for use in examining the environmental impact of the Hamilton AFB, California, base closure on Marin County, California.

2. Measure the various indicators of the stated factors before and after Hamilton AFB, California, base closure.

3. Compare and determine the significance of any change in the indicators.

4. Determine, if a significant change exists, if that change was related to the Hamilton AFB, California base closure.

5. Provide future researchers an insight for predicting the environmental impact of a base closure on the neighboring community.

Research Questions

The answers to the following research questions will provide the means to fulfill the research objectives:

1. What officially recorded data are available to DOD which may be used to assess the environmental impact of the Hamilton AFB closure on the neighboring community?

2. What were the significant environmental changes on the neighboring community during the time period of the Hamilton AFB closure?

Chapter 2

METHODOLOGY

Research Approach

Basic to the detailed examination of any area under study is the need for a general definition. For purposes of studying the environment, a general definition of the environment includes "the aggregate of all external conditions and influences . . . that affect the life of a human [18:4-2]." This general definition is not operationally useful because it does not identify areas in which data collection is possible. Another way of defining the environment is to stratify it into three factors: natural and physical, economic, and social; and list all observable indicators of the environmental factors. Such a list would be endless, but for a given environmental study, conceivably only a limited number of those indicators would be affected.

Using the latter approach, the initial phase of this environmental impact research required determining which environmental factor indicators to investigate.

Phase I of the overall environmental impact research effort was designed to identify the environmental factor indicators which should be investigated. Six

master's degree theses on topic areas similar to this research effort were completed at the Air Force Institute of Technology (2; 3; 4; 8; 15; 19). Each thesis concentrated on reviewing existing literature pertinent to environmental indicators and developed comprehensive lists of indicators to be used for environmental factor investigation. This research effort determined the following environmental factor indicators as being available for analysis of significant changes in Marin County, California, after the Hamilton AFB closure (See Tables 2-4).

The lists are not asserted to be complete specifications of all environmental factor indicators. Likewise, the determination of the base closure impact on each of these indicators is not asserted to be the complete impact on the neighboring community. The elements of each list were selected because they provided data for at least a ten-year period prior to the base closure and were suitable as indicators of an environmental factor.

Data Collection Plan

Quantifiable data were collected for each indicator as year-end totals for at least a ten-year period between 1960 through 1975. The data were collected for each indicator for both Marin County, California, and the State of California.

Table 2

Natural and Physical Environmental Indicators

Mileage of Roads
Total Expenditures on Highways, Roads, and Streets (21)

Table 3

Economic Environmental Indicators

- Assessed Value of Tangible Property Subject to Local Tax
  - Net Taxable Assessed Value
  - Taxes Levied in City
  - Taxes Levied in County
  - Taxes Levied in School
  - Taxes Levied in Other Districts
  - Taxes Levied in Total
  - Average Tax Rate Per $100 of Assessed Value
  - Total of State and County Assessed
- Financial Transactions
  - County
    - Receipts
    - Payments
    - Bonded Indebtedness
  - City
    - Receipts
    - Payments
    - Bonded Indebtedness
  - School District
    - Receipts
    - Payments
    - Bonded Indebtedness

Table 3 (continued)

Taxable Sales
Apparel Stores
General Merchandise Stores
Drug Stores
Food Stores
Packaged Liquor Stores
Eating and Drinking
Home Furnishings and Appliances
Building Material and Farm Implements
Auto Dealers and Auto Supplies
Service Stations
Other Retail Stores
Retail Stores Total
All Other Outlets
Total All Outlets
Number of New Housing Units Authorized by Building Permits (21)

Table 4

Social Environmental Indicators

Vital Statistics

- Population
- Marriages
- Live Births
- Divorces
- Annulments
- Deaths

Average Monthly Employment Covered by the Insurance Code

- All Industries
- Agriculture, Forestry, and Fishing
- Mining
- Construction
- Manufacturing
- Transportation and Public Utilities
- Wholesale and Retail Trade
- Finance, Insurance, and Real Estate
- Services

Manufacturing Firms - Number

Number of Telephones

- Residence
- Business
- Total

Table 4 (continued)

First Commitments Placed Under Youth Authority Custody

Youth Population - Ages 10-17

Youth Population - Ages 18-20

Rate Per 100,000 Youth Population - Juvenile

Rate Per 100,000 Population - Criminal

Rate Per 100,000 Youth Population - Total

Vehicle Code Convictions and Accidents

Convictions for Vehicle Code Violations

Number of Fatal and Injury Accidents

General Relief and Aid

Total General Relief Expenditures

Aid to Families with Dependent Children

- Families

- Children

- Expenditures

Aid to Families with Dependent Children, Boarding Homes and Institutions

- Children

- Expenditures

Number of Public High School Graduates (21)

The collection procedure was initiated by personal interview of the Base Manager, Mr. Victor N. Meleyco, and various public officials to determine the specific sources of data for the natural and physical, economic, and social indicators. Examples of the public officials contacted were the Assistant County Administrator, Marin County, Mr. Thomas F. Campanella; the Chief Building Inspector, Department of Public Works, County of Marin, Herbert F. Wimmer; the Senior Accountant of the Auditor-Controller, Marin County, Mr. Richard J. Wynn; the Deputy Director of the Marin County Department of Public Works, Mr. Mario Balestrieri; and the Manager of the Marin County Chamber of Commerce, Mr. Francis T. Fogarty. These officials provided some information which was mostly background in nature.

Through guidance received from the Marin County Chamber of Commerce, the research team was directed to the U. S. Department of Commerce, San Francisco Office of Field Operations, where the team was introduced to the California Statistical Abstract (21). The Statistical Abstract contained data on a multitude of economic and social indicators for both the county and state levels. These abstracts for the years 1960 through 1976 provided the data for the research team's analysis. The environmental factor indicators listed in Tables 2-4 provide the answer to Research

Question No. 1. Data, as collected on each indicator, were analyzed by the following method.

Application of Time Series Forecasting

The data gathered constituted a sequence of measurements taken on each variable indicator over independent intervals of time. Such a sequence is called a discrete time series (5:401; 16:219). The analysis of time series for purposes of estimation, decision making, and forecasting is very complicated. Measurements appearing in a time series are usually highly correlated for determination of dependent relationships between measurements. Consequently, time-series data will often defy the basic assumptions of independence between measurements utilized in regression and analysis of variance models (5:402-3). For this reason, time-series analysis should not be attempted through regression or analysis of various models but should use exponential smoothing techniques.

A review of the literature related to environmental impact prediction did not address the use of a forecasting model methodology to analyze base closure impacts. Nevertheless, with a few basic assumptions, time-series analysis and forecasting can provide a useful model for measuring a significant change to an environmental factor indicator. The following assumptions were made for the application of time-series forecasting to an environmental factor indicator:

1. A neighboring community to a military base will establish societal and economic trends which will continue unless interrupted by a significant change to the overall community environment.

2. A neighboring community to a military base is a small microcosm of the state in which it resides and will generally follow the same societal and economic trends of the state.

3. Time-series data gathered will fit the definition of a discrete time series.

4. The distribution of the forecast errors follows a normal distribution.

In making the first assumption, the researchers acknowledge that individual communities can and will change their social and economic trends. But as stated in the assumption, the researchers believe the change will result from a new significant influence imposing upon the community. Otherwise, the human nature to resist change will keep the community social and economic trends rising, falling, or remaining constant.

Again, in making the second assumption, the researchers acknowledge that any community can vary significantly in its social and economic trends from its state's trends. But because of state laws and policies which significantly influence social and economic activity

on a local level, communities on an average should exhibit similar trends as the state.

Assumption Three is based on the fact that the agencies providing the data accumulate it over an interval of time of one calendar year, then restart the accumulation process at zero for the next year period. Therefore, each data point is a cumulative total associated only with that one year time interval.

The distribution of the forecast errors has been analyzed to great length in Section V of Dr. Robert Goodell Brown's book on discrete time series (5:271-90). The actual distribution can assume many shapes, but in most cases, the forecast error distribution will follow a normal distribution (5:14). Further justification for Assumption Four is provided by Dr. Brown's analysis which shows the normal distribution to be a more conservative model in constructing forecast safety intervals around forecasted points (5:278-87). Application of time series forecasting was accomplished through the use of a commercially available computer program.

TCAST Computer Program. Time series forecasts for each indicator data set were generated by the Honeywell Corporation TCAST computer program. The indicator data set included data only for the time period preceding the closure of Hamilton AFB, California, 1960 through 1973.

The TCAST program was used to forecast a new data point for the years 1974 and 1975. (See Appendix A for explanations of TCAST program and time series forecasting techniques.)

The forecasted and actual data points were then plotted and a forecast safety interval constructed around the 1975 forecast point. The forecast safety interval chosen defined a range of values in which there was a 90 out of a 100 chance of the actual data point appearing in that range. The 90 per cent forecast safety interval was picked as a reasonable initial measure of the accuracy of the forecast. The range of the forecast safety interval was determined by multiplying the appropriate Normal K (safety factor) value for a normal distribution times twice the mean absolute deviation (MAD) computed for the forecast by the TCAST computer program (5:Table 19-6,286-90).

The location of the actual data point in relation to the forecast safety interval will determine which of the decisions will be made as to whether a significant change resulted to the indicator after the base closure.

Decision Scheme. The relationship of the county and state actual data point to the confidence intervals can follow four possible combinations. The combination which resulted determined if there was a significant change to the indicator at the county level and provided the answer for Research Question No. 2.

Table 5

Decision Scheme Combinations

Actual Data	1		2		3		4	
	State	County	State	County	State	County	State	County
Inside CI	X	X		X	X			
Outside CI			X			X	X	X
Significant Change	No: Note 1		No: Note 2		Yes: Note 3		Note 4	

Note 1: Both actual data points fall within the safety interval. The actual data point can not be shown to be significantly different than the forecasted point; therefore, no significant change occurred.

Note 2: The state's deviation is assumed to have been caused by factors outside the county being studied. The county remained within the safety interval; therefore, no significant change occurred at the county level.

Note 3: The state remaining within the safety interval and the county outside the interval shows a significant change only at the county level. A subjective determination would be necessary to conclude that the significant change was attributed to the base closure.

Note 4: Since both the state's and county's actual data points fall outside their safety intervals, no determination can be made as to whether the indicator significantly changed because of only local environmental causes. Therefore, this combination was classified as not determinable.

Chapter 3

PRESENTATION OF RESULTS

This research effort produced information related to the significant changes occurring in the environmental factor indicators for Marin County, California, during the two-year period following the closure of Hamilton AFB. This was a result of (1) the availability of the wealth of information on the various indicators in the California Statistical Abstract and (2) the application of the time-series forecasting methodology to analyze the data collected for significant changes.

Presentation of Data

The information produced by this research effort is categorized under the natural and physical, economic, and social environmental factors. The individual factors have been further categorized as shown in Table 6. Within each category, the information is presented in terms of a brief description of the category and identification of the indicators which showed a significant change. Graphical and tabular presentation of the data for each indicator is in Appendix C.

Collection of data for the natural and physical environmental factors was limited by the fact that

Table 6

Environmental Factor Categories

Natural and Physical Environmental Categories
Mileage of Roads
Total Expenditure on Highways, Roads, and Streets
Economic Environmental Categories
Assessed Value of Tangible Property Subject to Local Taxation
Financial Transcations
Taxable Sales
Number of New Housing Units Authorized by Building Permits
Social Environmental Categories
Vital Statistics
Average Monthly Employment Covered by the Insurance Code
Manufacturing Firms
Number of Telephones
First Commitments Placed Under Youth Authority
Vehicle Convictions and Accidents
General Relief and Aid
Number of Public High School Graduates

information of this type is collected for the entire San Francisco-Oakland metropolitan area and thusly could not be separated out to the Marin County area. All moretary data presented have been adjusted to 1967 dollars via adjustment provided by the Consumer Price Index for both the State of California and the San Francisco-Cakland area. In this way, inflationary effects have been removed from the analysis. Further explanation of each indicator can be found in the California Statistical Abstract.

Any portion(s) of the data omitted for a given indicator resulted from a lack of available data for those time periods of that specific indicator.

Natural and Physical Environmental Categories

Mileage of Roads. Data collected covered the total miles of state highways, county roads, city streets, state roads other than state highways, and national roads not overlapping state or local systems. No significant changes resulted in this category and indicator after the base closure.

Total Expenditures on Highways, Roads, and Streets. Data collected covered the expenditures to construct and maintain state, county, and city roads. No significant changes were found in this category and indicator after the base closure.

Economic Environmental Categories

Assessed Value of Tangible Property Subject to Local Taxation. Data collected represent the assessed values on which general property taxes were levied and the actual taxes collected for each fiscal year. Of particular note is the Average Tax Rate per $100 of Assessed Value indicator which is directly related to the tax structure and atmosphere of the community.

Only the Taxes Levied in the County and the Average Tax Rate Per $100 of Assessed Value indicators showed significant changes after the base closure.

Financial Transactions. Data relating to the financial operation of government agencies in the State of California and Marin County are presented in this category. In general, the purpose is to present data on revenues, expenditures, and debt for each of the county, city, and school districts. Only the Bonded Indebtedness for Marin County indicator showed a significant change after the base closure.

Taxable Sales. This category presents data on wholesale and retail sales. The indicators are classified according to the seller's principal line of business with the retail sales being presented in several indicators and the wholesale sales only under the "All Other Outlets"

indicator. Only the catch-all indicator, "Other Retail Stores," showed a significant change after the base closure.

Number of New Housing Units Authorized by Building Permits. This category presents data on California building permits issued for the combined total of single and multiple housing units. No significant change was present in this category and indicator after the base closure.

Social Environmental Categories

Vital Statistics. This category presents data relating to the health and welfare. Indicators presented are population, marriages, live births, divorces, annulments, and deaths. In interpreting data on these indicators, certain limitations must be recognized. Crude rates for vital events are heavily influenced by age and sex distributions within the populations and the improvements in medical knowledge and techniques.

Marriages, divorces, and live birth indicators each showed a significant change after the base closure.

Average Monthly Employment Covered by the Insurance Code. This category presents data relating to the civilian labor force of California. Employment data is based on the number of employees covered by the California Unemployment Insurance Code, and for the agricultural employees, the

Disability Insurance Program. Care has been taken in the data collection process to insure that the multiple jobholders are counted only once.

The wholesale and retail trade and services indicators showed significant changes after the base closure.

Manufacturing Firms. This category presents data on the number of manufacturing firms, all classes combined, existing in California and Marin County. No significant change resulted in this category and indicator after the base closure.

Number of Telephones. This category presents data on the number of telephones in use for residence and business phones and their combined total. The residence phone indicator showed a significant change after the base closure.

First Commitments (Crimes) Placed Under Youth Authority Custody. This category presents data showing the number and procedural movement of persons under commitment to the youth authority correctional agencies. Youth population data indicate the total number of youth within the specified age brackets. No significant changes resulted in the indicators after the base closure.

Vehicle Code Convictions and Accidents. This category presents data for the number of vehicle code

convictions, all classes, and the number of fatal and injury accidents involving vehicles. No significant changes were present after the base closure.

General Relief and Aid. This category presents data for general relief provided by the County Welfare Departments to needy persons, who need financial assistance and are not eligible under state subvented assistance programs such as the Supplemental Security Income/State Supplemental Program, Aid to the Blind or Needy Disabled, etc. The data related to aid concentrates on financial assistance for children under 21 years of age who are in need because of the death, continuous absence, incapacity, or unemployment of a parent. The aid data cover the number of families, the number of children, and the dollar expenditures. No significant changes were present in the indicators after the base closure.

Number of Public High School Graduates. This category presents data on the number of high school graduates produced by public day and evening schools. No significant changes occurred in this indicator after the base closure.

Summary

Analysis of the various indicators which were significantly changed two years after the base closure

showed that the changes in the average monthly employment of the services trade area and the taxable sales of the catch-all indicator, "Other Retail Sales," were the only changes that could be classed as adverse for Marin County, California. The other indicators which changed all showed growth to the economic base or improvement to the social climate of the county. To relate any of these changes directly to the base closure would require much more in-depth analysis of the factors driving the trends of the indicators than was possible through this research effort.

Some indicators which have been identified as strong economic and social environmental indicators by past research efforts could not be analyzed. The data sources either changed data presentation formats from year to year which interrupted the continuity of the time series data or the indicator collection program had not been in existence a sufficient length of time to provide enough data points for application of the researchers' analysis methodology.

Chapter 4

CONCLUSIONS AND RECOMMENDATIONS

Impact on Marin County, California

Based on the data that was collected and analyzed, there appears to be no overall adverse environmental impact on the neighboring community of Marin County, California, as a result of the closure of Hamilton AFB. This conclusion is based on quantitative analysis via the research methodology and qualitative support provided by the background information obtained from the various public officials contacted and the researchers' insight into the driving forces behind the various indicators.

Recommendations

The methodology used in this research to determine significant changes in a neighboring community after a base closure has not been used before and should be further validated. The validation should be accomplished by further applications of the methodology to base closure data that has been previously analyzed with other techniques and have known impacts. The forecasting technique should also be analyzed in depth for ways to reduce the lag character-

istics and the effects on its predictive capabilites when lead time is varied.

A considerable amount of computer terminal time could be saved when using this methodology by merging the TCAST and graphics program together and by revising the TCAST program. The merger would eliminate the manual creation of data files for the plots after each forecast is made. TCAST should be revised so that the terminal operator does not have to manually search out by trial and error the optimum alpha and smoothing type which gives the smallest error MAD. This search can be internally accomplished by the computer using alpha values separated by an entered interval, such as 0.001, from zero to the maximum alpha desired to be analyzed. The computer would then select the optimum alpha and smoothing type itself and then continue on with the program without further operator input. The TCAST program should, additionally, be modified to calculate the total MAD by interrally determining the absolute value of the difference between each forecast and actual data points, then compute the average of their sum. This MAD should be multiplied by an entered factor selected for a specified Safety Interval and plotted by the merged TCAST/graphics program.

APPENDIX A

HONEYWELL'S TCAST TIME SERIES FORECASTING COMPUTER PROGRAM

The TCAST computer program has been typically applied to forecasting sales, profits, prices, customer demand, inventory levels, production loads, growth, economic indicators, and natural and physical phenomena. The program makes four fundamental analyses to provide useful forecasts:

1. Cyclic analysis of past data
2. Trend analysis of past data
3. Error analysis for comparing forecast with actual data
4. Synthesis of analyses to form a forecast (9:1-1)

The TCAST program performs intrinsic analysis on regular discrete time series and then synthesizes a forecast. An intrinsic analysis attempts to describe the behavior of a variable on the basis of exhibited characteristics, and is not concerned with external (cause and effect) relationships. The program performs a cyclic analysis, which indicates any regularly recurring behavior, and a trend analysis, which indicated the prevailing tendency or direction. Human judgment, discontinuities, and results of other analyses can be interjected into both analysis and synthesis through a base time series (9:1-1).

Since all forecasting methods are fallible, it is impossible to forecast the future with absolute certainty. In attempting to forecast the future, two precautions should be observed:

1. Do not take the future for granted, and

2. Do not become overconfident in any forecasting technique (9:3-1).

Before any analyses are made, the TCAST program subtracts the base series data from the actual data to compensate for the researchers' inputted knowledge about the phenomena under examination. This leaves a residue which provides the basis for further analyses. When the forecast is synthesized, the base series is added back in to give a forecast relevant to the actual data (9:3-1).

An autoregressive type of analysis is made to determine the most significant cyclic effects that are exhibited by the time series. After the length or period of any cyclic tendencies of the data is determined, the cyclic effects are subtracted from the raw data residue, and later added back to form a composite forecast (9:3-1).

Exponential smoothing techniques are used to determine the trend tendencies of the data after it is corrected for cyclic effects. Exponential smoothing is merely a convenient method for calculating weighted moving

averages (9:3-1). The basic equation of exponential smoothing is

$$Sl_t = \alpha X_t + (1 - \alpha)\ Sl_{t-1}; t = 1, 2, 3, \ldots, n$$
$$0 < \alpha < 1$$

where Sl_t is the exponentially smoothed average through time t, α is the smoothing constant which must be less than one, and X_t is the most recent data value added to the average (9:4-1).

The exponential smoothing technique computes an average for all past data, but the effect the remote data has on the current average is determined by the selection of the smoothing constant. For values of α near one, remote responses have little effect on the average; for α near zero, they carry nearly equal weight as the current data in computing the current average of the data (5:410).

The theory of selection of the best smoothing constant involves very high level mathematics. The TCAST computer program allows the researcher to select several different α's for which the program performs an error analysis. The objective of the error analysis is to choose the smoothing constant and the order of smoothing which will minimize the error in the forecast over the time interval the forecast is made. The program provides an error measure value and the researcher continues to supply different α's until he has reached the smallest error measure value (9:3-6).

First, second, and third order smoothing methods are used by the TCAST program. First order corresponds to data which is nearly constant in value over successive time intervals. Second order corresponds to data with a linear change over successive time intervals. And, third order corresponds to quadratic rate of change of the data over successive time intervals (9:3-5).

Generally, the smoothing constant and order of smoothing which yield the most accurate forecast represents a compromise between stability and responses. A forecast model which does not respond quickly enough introduces intolerable errors due to its sluggishness, whereas a system that is not stable enough will respond too quickly and create large errors due to overshoot (9:3-6).

After all analyses have been made, the results are combined or synthesized to form a composite forecast. The power and accuracy of the TCAST computer program method of forecasting is due to: (1) parameters are optimized for exponential smoothing and, (2) the most significant results of several methods are combined to develop a composite forecast which gives more accurate results than any one method used independently (9:3-6).

APPENDIX B

STEP BY STEP METHODOLOGY PROCEDURE

The purpose of this appendix is to provide the reader with a very basic and detailed step-by-step procedure for applying the methodology.

FORECAST:

1. The Honeywell TCAST program is accessed under FORTRAN by the command RUN SL.LIB/TCAST,R. For this run the instructions will be requested, then the print option ; ASK given.
2. The problem title is entered, then the lead time of two years, the horizon of two years, no specific smoothing type choice value, and the range of values to be analyzed for the run.
3. The yearly actual data prior to the base closure is entered with the 1E15 on the first and last line to indicate that base points are not to be used.
4. After reprinting the above information, the program will select a dominant cycle which is not used since the data content is not felt to be of cyclic nature; therefore, a cycle of 1 is entered.
5. This step searches for the alpha with the smallest error MAD for each smoothing type by a trial and error approach toward the optimum alpha to three decimal places.

6. When no additional alpha's are required and the carriage is returned, the program automatically lists the optimum alpha and smoothing type from the alpha trials in Step 5. This smoothing type and alpha are then manually entered.
7. The forecast is directed to the terminal which provides the forecast, actual, and error for each year beginning with the seventh period. Also provided is some statistical information.
8. The actual data, forecasted data, smoothing type, and alpha is transcribed to the table. The MAD is calculated by adding the absolute value of the errors (difference between actual and forecast) for each forecasted period and calculating the mean of the sum. The mean value is the MAD and is entered on the table.
9. The 90% $\pm$ Safety Interval is computed by multiplying the MAD by 2.062 and entering the result in the table.
10. Steps 1 through 9 should be completed for both the county and the state.

PLOT:

11. A data file must be established for the yearly actual data (including data gathered for after the base closure) and the yearly forecasted data with each point preceded by the year, listed in the following order: County Actual, County Forecast, State

Actual, State Forecast.

12. The plot program is then called up under the system CARDIN. Lines 1140, 1150, 1170, and 1180 must be changed for each county indicator which changes the y-axis title, range, and divisions. Lines 1210 and 1220 are changed to center the plot's title and to name it. Lines 1580, 1590, 1610, and 1620 must be changed for each state indicator which changes the y-axis title, range, and divisions. Line 1940 is changed to access the data file. These are the only lines required to be changed for each indicator.
13. The plot program is then run. When the graph is obtained, the 90% Safety Interval is drawn on the graph. The table is then annotated as to the decision made using the decision scheme.

```
SYSTEM ?FORTRAN
OLD OR NEW-NEW
READY
*RUN SL.LIB/TCAST,R

ENTER '?' FOR INSTRUCTIONS
FILES ( PRINT OPTION)
=?
ENTER THE INPUT AND OUTPUT FILE DESCRIPTIONS
AND THE OPTIONAL PRINT-OUT-LEVEL OPTION.
THE FILEDESCR'S ARE DELIMITED BY ';'.  A SINGLE BLANK
MUST PRECEDE THE PRINT OPTION.  A NULL FILE IMPLIES
THE TERMINAL.  THE PRINT OPTIONS ARE--
   COMPLETE -- PRINT EVERYTHING
   ASK -- ASK ABOUT PRINTING EACH SECTION
   PART -- ASK ABOUT CYCLIC ERRORS, FORECAST TREND
           & FORECAST DATA.  DON'T PRINT ANY OTHER DATA
   LEAST -- PRINT ONLY CYCLIC ERROR & TREND
ANY DATA NOT PRINTED WILL BE WRITTEN ON THE OUTPUT FILE
FIRST LETTER ABBREVIATION IS OK.
IF NOT ENTERED, PART IS ASSUMED PRINT OPTION.
SAMPLE RESPONSES MIGHT BE--
USERID/INPUT;OUTPUT COMPLETE
;OUTPUT
=; ASK

ENTER PROBLEM TITLE-
=DIVORCES COUNTY

PROBLEM NAME:
DIVORCES COUNTY



ENTER LEAD TIME,HORIZON,SMOOTHING TYPE,YSMALL,YLARGE-
=2,2,0,200,1800

ENTER DATA,BASE POINTS(ONE PAIR/LINE)
=341,1E15
=389
=415
=460
=476
=613
=641
=564
=706
=669
=1075
=1089
```

```
=1228
=1395
=1E15

DIRECT INITIAL DATA TO FILE(Y OR N)-
=N


INITIAL DATA

NUMBER OF RAW DATA POINTS-- 14
NUMBER OF BASE DATA POINTS--  0
FORECAST HORIZON--  2
LEAD TIME-- 2

TIME         RAW DATA
  1         341.00000
  2         389.00000
  3         415.00000
  4         460.00000
  5         476.00000
  6         613.00000
  7         641.00000
  8         564.00000
  9         706.00000
 10         669.00000
 11        1075.00000
 12        1089.00000
 13        1228.00000
 14        1395.00000

DIRECT CYCLIC ERROR TO FILE(Y OR N)-
=N


CYCLIC ERROR
 K        ERR(K)
  1   1075.855316
  2   1101.164001
  3   1453.327835
  4   1422.065247
  5    895.961418
  6   2333.432892
  7   1841.893402

PERIOD OF MOST DOMINANT CYCLE=  5

PERFORM ANALYSIS FOR PERIOD-
=1

DIRECT CYCLIC VALUES TO FILE-
=N
```

CYCLIC VALUES

PERIOD= 0

T C(T)

DO YOU WANT TO TRY A DIFFERENT PERIOD (Y OR N)-
=N

DIRECT TREND ANALYSIS TO FILE-
=N

TREND ANALYSIS

ENTER ALPHAS(MAX OF 8)
=.05 .1 .15 .2 .25 .3 .35 .4

ALPHA	TYP SM	ERROR MAD
0.05000	1	447.35006
0.05000	2	392.98180
0.05000	3	343.30124
0.10000	1	398.36845
0.10000	2	309.54736
0.10000	3	235.70770
0.15000	1	359.18991
0.15000	2	249.23763
0.15000	3	171.70317
0.20000	1	327.49586
0.20000	2	206.39605
0.20000	3	137.10807
0.25000	1	301.54070
0.25000	2	177.40132
0.25000	3	116.36610
0.30000	1	280.01322
0.30000	2	157.20368
0.30000	3	100.54250
0.35000	1	261.92984
0.35000	2	141.40401
0.35000	3	106.59717
0.40000	1	246.55278
0.40000	2	129.68647
0.40000	3	120.42355

ADDITIONAL ALPHAS-
=.45 .5 .55 .6 .65 .666

0.45000	1	234.02823
0.45000	2	120.38822
0.45000	3	135.09256
0.50000	1	223.29714
0.50000	2	114.39250
0.50000	3	149.70646
0.55000	1	213.88581
0.55000	2	118.05204
0.55000	3	163.69673
0.60000	1	205.56733
0.60000	2	124.19635
0.60000	3	176.59334
0.65000	1	198.16848
0.65000	2	131.96121
0.65000	3	191.30064
0.66600	1	195.97236
0.66600	2	134.60361
0.66600	3	198.38591

ADDITIONAL ALPHAS-
=.26 .27 .28 .29 .30 .31 .32 .33 .34

0.26000	1	296.91659
0.26000	2	172.92946
0.26000	3	112.90335
0.27000	1	292.45981
0.27000	2	168.68951
0.27000	3	109.60844
0.28000	1	288.16212
0.28000	2	164.66507
0.28000	3	106.46128
0.29000	1	284.01571
0.29000	2	160.84108
0.29000	3	103.44436
0.30000	1	280.01322
0.30000	2	157.20368
0.30000	3	100.54250
0.31000	1	276.14771
0.31000	2	153.74011
0.31000	3	99.21740
0.32000	1	272.41265
0.32000	2	150.43866
0.32000	3	100.20486
0.33000	1	268.80182
0.33000	2	147.28858
0.33000	3	102.03552
0.34000	1	265.30938
0.34000	2	144.28003
0.34000	3	104.31147

ADDITIONAL ALPHAS-
=.306 .307 .308 .309 .310 .311 .312 .313 .314

0.30600	1	277.67791
0.30600	2	155.10546
0.30600	3	98.99407
0.30700	1	277.29337
0.30700	2	154.76164
0.30700	3	98.93380
0.30800	1	276.91018
0.30800	2	154.41949
0.30800	3	99.02769
0.30900	1	276.52830
0.30900	2	154.07899
0.30900	3	99.12223
0.31000	1	276.14771
0.31000	2	153.74011
0.31000	3	99.21740
0.31100	1	275.76844
0.31100	2	153.40286
0.31100	3	99.31325
0.31200	1	275.39047
0.31200	2	153.06720
0.31200	3	99.40972
0.31300	1	275.01379
0.31300	2	152.73315
0.31300	3	99.50685
0.31400	1	274.63839
0.31400	2	152.40069
0.31400	3	99.60462

ADDITIONAL ALPHAS-
=.46 .47 .48 .49 .50 .51 .52 .53 .54

0.46000	1	231.76328
0.46000	2	118.73056
0.46000	3	138.03895
0.47000	1	229.56014
0.47000	2	117.13357
0.47000	3	140.97820
0.48000	1	227.41629
0.48000	2	115.71895
0.48000	3	143.90560
0.49000	1	225.32936
0.49000	2	115.02772
0.49000	3	146.81650
0.50000	1	223.29714
0.50000	2	114.39250
0.50000	3	149.70646
0.51000	1	221.31746
0.51000	2	114.45455
0.51000	3	152.57115
0.52000	1	219.38834
0.52000	2	115.22717

```
0.52000     3          155.40640
0.53000     1          217.50787
0.53000     2          116.10834
0.53000     3          158.20824
0.54000     1          215.67426
0.54000     2          117.05014
0.54000     3          160.97289

ADDITIONAL ALPHAS-
=.504 .505 .506 .507 .508 .509
0.50400     1          222.49907
0.50400     2          114.15378
0.50400     3          150.85562
0.50500     1          222.30086
0.50500     2          114.13907
0.50500     3          151.14221
0.50600     1          222.10315
0.50600     2          114.20087
0.50600     3          151.42856
0.50700     1          221.90596
0.50700     2          114.26332
0.50700     3          151.71466
0.50800     1          221.70929
0.50800     2          114.32642
0.50800     3          152.00043
0.50900     1          221.51312
0.50900     2          114.39016
0.50900     3          152.28593

ADDITIONAL ALPHAS-
=

OPTIMUM SMOOTHING TYPE=3  ALPHA=0.30700000

WHAT SMOOTHING TYPE AND ALPHA-
=3 .307

DIRECT FORECAST DATA TO FILE-
=N

DIRECT FORECAST PLOT TO TERMINAL,OUTPUT FILE, OR PLOT FILE (T,O,P)
=T


FORECAST PLOT


FORECAST DATA

BEGIN FORECAST AT PERIOD-
=1
```

USED ALPHA TYP SM
0.30700 3

TIME	RESIDUE	COMPOSITE (.)	ACTUAL (*)	ERROR
TIME	0.20000E 03			0.18000E
7	551.08	551.08	641.00	89.917
8	715.05	715.05	564.00	-151.05
9	789.06	789.06	706.00	- 83.062
10	693.74	693.74	669.00	- 24.737
11	801.58	801.58	1075.0	273.42
12	774.71	774.71	1089.0	314.29
13	1228.8	1228.8	1228.0	-0.78549
14	1379.3	1379.3	1395.0	15.711
15	1540.9	1540.9		
16	1733.9	1733.9		

DIRECT STATISTICAL INFORMATION TO FILE-
=N

STATISTICAL INFORMATION

S1 = 1101.83907
S2= 874.61324
S3= 707.94559

CED1= 1101.83907
CED2= 1329.06490
CED3= 1389.62306

C2= 100.66137
C3= 160.25836
RC3= 11.88456

LEAST SQUARES CURVE FIT

Y= 150.473+ 75.756*X

MEAN= 718.643
VARIANCE= 106716.804

DIVORCES

Year	County( )		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	341		44.04	
1961	389		46	
1962	415		48.03	
1963	460		50.14	
1964	476		52.51	
1965	613		63	
1966	641	551	62.65	54.24
1967	564	715	62.98	63.17
1968	706	789	67.90	67.90
1969	669	694	73.32	70.36
1970	1075	802	107.31	74.52
1971	1089	775	102.85	80.03
1972	1228	1229	105.76	106
1973	1395	1379	112.86	117.45
1974	1308	1541	117.22	124.64
1975	1346	1734	124.24	131.97

Forecast	County	State
Smoothing Type	3	3
Alpha	.307	.193
MAD	106	9
90%± Safety Interval	219	18.56
Decision Scheme		
Inside Safety Interval		X
Outside Safety Interval	X	
Significant Change	Yes	

```
SYSTEM ?FORTRAN
OLD OR NEW-OLD
OLD FILE? DIVOR
READY
*LIST

010 1960 341
020 1961 389
030 1962 415
040 1963 460
050 1964 476
060 1965 613
070 1966 641
080 1967 564
090 1968 706
100 1969 669
110 1970 1075
120 1971 1089
130 1972 1228
140 1973 1395
150 1974 1308
160 1975 1346
170 1966 551
180 1967 715
190 1968 789
200 1969 694
210 1970 802
220 1971 775
230 1972 1229
240 1973 1379
250 1974 1541
260 1975 1734
270 1960 44.04
280 1961 46.00
290 1962 48.03
300 1963 50.14
310 1964 52.51
320 1965 63.00
330 1966 62.65
340 1967 62.98
350 1968 67.90
360 1969 73.32
370 1970 107.31
380 1971 102.85
390 1972 105.76
420 1973 112.86
430 1974 117.22
440 1975 124.24
450 1966 54.24
460 1967 63.17
470 1968 67.90
480 1969 70.36
490 1970 74.52
```

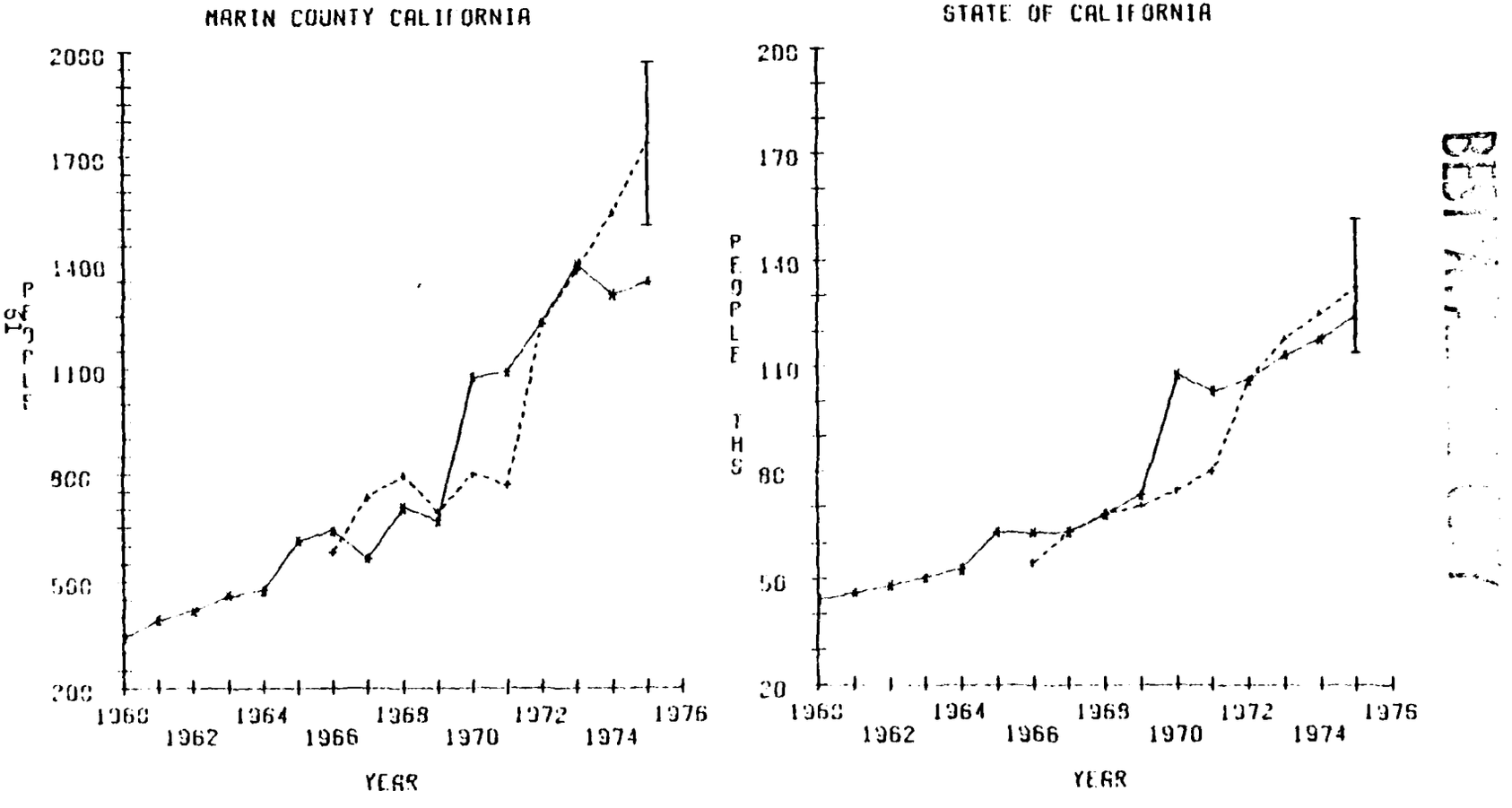
```
500 1971 80.03
510 1972 106.00
520 1973 117.45
530 1974 124.64
540 1975 131.97

ready

*

SYSTEM ?CARDIN
OLD OR NEW-OLD
OLD FILE? GRAPHD
READY
*RUN
  SNUMB ‡‡ o107+
*LIST

1000‡‡ ‡‡NORM,R(SL)
1010$:IDENT:WP1191,AFIT/SLG TUCKER/PATRICK 77A
1020$:MSG2:1,SEND PLOT TAPE TO PLOTTER **USE BLACK INK** (G012B,
                                                        WP1191
1030$:OPTION:FORTRAN,NOMAP
1040$:FORTY:NFORM,NLNO
1050 CALL USTART
1051 CALL USET("SMALL")
1060 CALL UDAREA(0.,11.,0.,8.5)
1070 CALL UPSET('SETDASH',12.)
1080 CALL UOUTLN
1090 CALL UDAREA(1.,5.5,1.25.6.)
1100 CALL USET ("XBOTH")
1110 CALL USET ("YBOTH")
1120 CALL USET("OWNSCALE")
1130 CALL UPSET(XLAB","YEAR\")
1140 CALL UPSET("YLAB","DIVORCES\")
1150 CALL UWINDO(1960.,1976.,200.,2000.)
1160 CALL UPSET("TICX",1.)
1170 CALL UPSET("TICY",50)
1180 CALL UAXIS(1960.,1976.,200.,2000.)
1190 CALL USET('DEVICE')
1195 CALL USET("MEDI")
1200 CALL UMOVE(5.5,7.)
1210 CALL UDOIT("BS04")
1220 CALL UWRITl("DIVORCES\","TEXT")
1230 CALL UMOVE(5.5,6.8)
1235 CALL USET("SMALL")
1240 CALL UDOIT("BS05")
1250 CALL UWRITl('* ACTUAL\',"TEXT')
1260 CALL UDOIT('LF01')
1270 CALL UPRNTl('+ FORECAST\','TEXT')
1280 CALL UMOVE(3.3,6.1)
1320 CALL UDOIT('BS12')
1330 CALL UPRNTl('MARIN COUNTY CALIFORNIA\','TEXT')
1340 CALL USET('VIRTUAL')
```

```
1350 CALL USET('SMALL')
1360 CALL USET('SOFT')
1370 CALL UDOIT('SETS')
1400 DO 100 J=1,16
1410 READ(5,101)YR1,D1
1420 101 FORMAT(U)
1430 IF (J.EQ.1) CALL UMOVE(YR1,D1)
1440 CALL UPEN1(YR1,D1,"L*")
1450 100 CONTINUE
1460 DO 200 J=1,10
1470 READ(5,101)YR2,D2
1480 IF (J.EQ.1) CALL UMOVE(YR2,D2)
1490 CALL UPEN1(YR2,D2,"D+")
1500 200 CONTINUE
1510 CALL USET('HARD')
1520 CALL USET("SMALL")
1530 CALL UDAREA(5.5,10.,1.25,6.)
1540 CALL USET("XBOTH")
1550 CALL USET("YBOTH")
1560 CALL USET("OWNSCALE")
1570 CALL UPSET("XLAB","YEAR\")
1580 CALL UPSET("YLAB","DIVORCES   THS\")
1590 CALL UWINDO(1960.,1976.,20.,200.)
1600 CALL UPSET("TICX",1.)
1610 CALL UPSET("TICY",10.)
1620 CALL UAXIS(1960.,1976.,20.,200.)
1625 CALL USET("DEVICE")
1630 CALL UMOVE(7.8,6.1)
1660 CALL UDOIT('BS10')
1670 CALL UPRNT1('STATE OF CALIFORNIA\','TEXT')
1680 CALL USET('VIRTUAL')
1690 CALL USET('SMALL')
1700 CALL UDOIT('SETS')
1705 CALL USET("SOFT")
1710 DO 300 J=1,16
1720 READ(5,101)YR1,D1
1730 IF (J.EQ.1) CALL UMOVE(YR1,D1)
1740 CALL UPEN1(YR1,D1,"L*")
1750 300 CONTINUE
1760 DO 400 J=1,10
1770 READ(5,101)YR2,D2)
1780 IF (J.EQ.1) CALL UMOVE(YR2,D2)
1790 CALL UPEN1(YR2,D2,"D+")
1800 400 CONTINUE
1810 CALL VEND
1820 STOP
1830 END
1840$:LIBRARY:A1,A2,A3,A4
1850$:EXECUTE
1860$:LIMITS:13,35K
1870$:PRMFL:A1,R,R,GRAPHICS.LIB/GCS/GCS3.0
```

```
1880$:PRMFL:A2,R,R,GRAPHICS.LIB/GCS/CALC3.0
1890$:PRMFL:A3,R,R,AF.LIB/CALLIB
1900$:PRMFL:A4,R,R,GRADLIB/BATCH
1910$:FFILE:27,FIXLNG/80,BUFSIZ/81
1920$:TAPE:27,X1D,,,,PLOT-TAPE/WR
1930$:DATA:I*
1940$:SELECTA:77A51/DIVOR
1980$:ENDJOB
```

DIVORCES

* ACTUAL
\+ FORECAST



APPENDIX C

DATA AND PLOTS

Preface

Yearly actual data in this appendix has been extracted from the California Statistical Abstract for each year, 1960 through 1976 (21). Monetary data has been adjusted via the Consumer Price Index to 1967 dollars.

CONSUMER PRICE INDEX

Year	County( )		State( )	
	Actual	Forecast	Actual	Forecast
1960	87.8		88.2	
1961	88.9		89.3	
1962	90.3		90.5	
1963	91.5		91.9	
1964	92.9		93.5	
1965	94.7		95.4	
1966	97.1		97.3	
1967	100.0	N/A	100.0	N/A
1968	104.5		104.1	
1969	110.2		109.3	
1970	115.8		114.9	
1971	120.1		119.1	
1972	124.3		123.1	
1973	131.5		130.2	
1974	144.4		143.5	
1975	159.9		158.5	

Forecast	County	State
Smoothing Type		
Alpha		
MAD		
90%± Safety Interval		
Decision Scheme		
Inside Safety Interval		
Outside Safety Interval		
Significant Change		

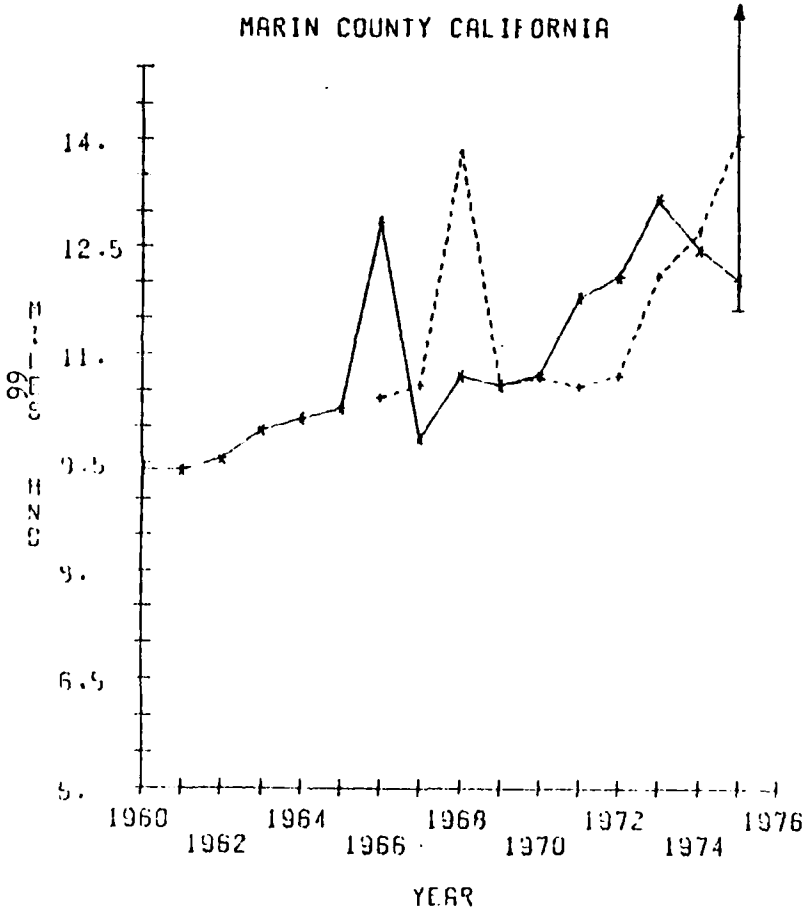
MILEAGE OF ROADS

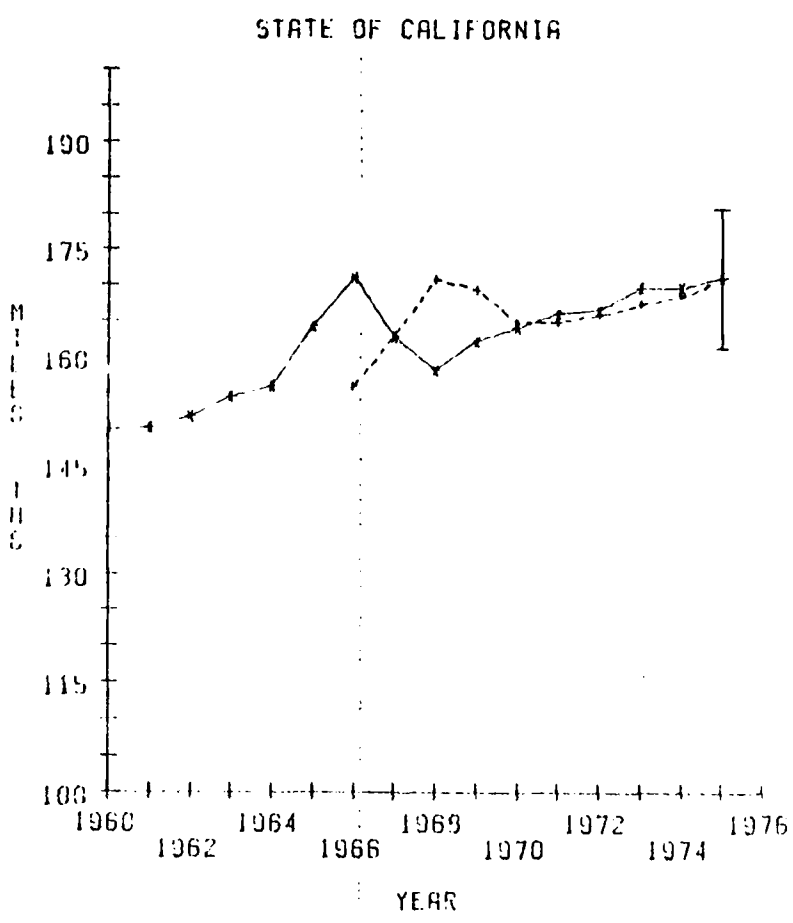
Year	County(HND)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	9.40		150	
1961	9.39		150	
1962	9.54		152	
1963	9.94		155	
1964	10.10		156	
1965	10.24		164	
1966	12.85	10.41	171	156
1967	9.83	10.58	163	163
1968	10.70	13.81	158	171
1969	10.58	10.58	162	169
1970	10.72	10.68	164	165
1971	11.78	10.56	166	165
1972	12.08	10.71	166	166
1973	13.14	12.08	170	167
1974	12.45	12.72	170	168
1975	12.04	14.05	171	171

Forecast	County	State
Smoothing Type	2	2
Alpha	.502	.298
MAD	1.24	4.949
90%± Safety Interval	2.56	10.2
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

MILEAGE OF ROADS

* ACTUAL
\+ FORECAST





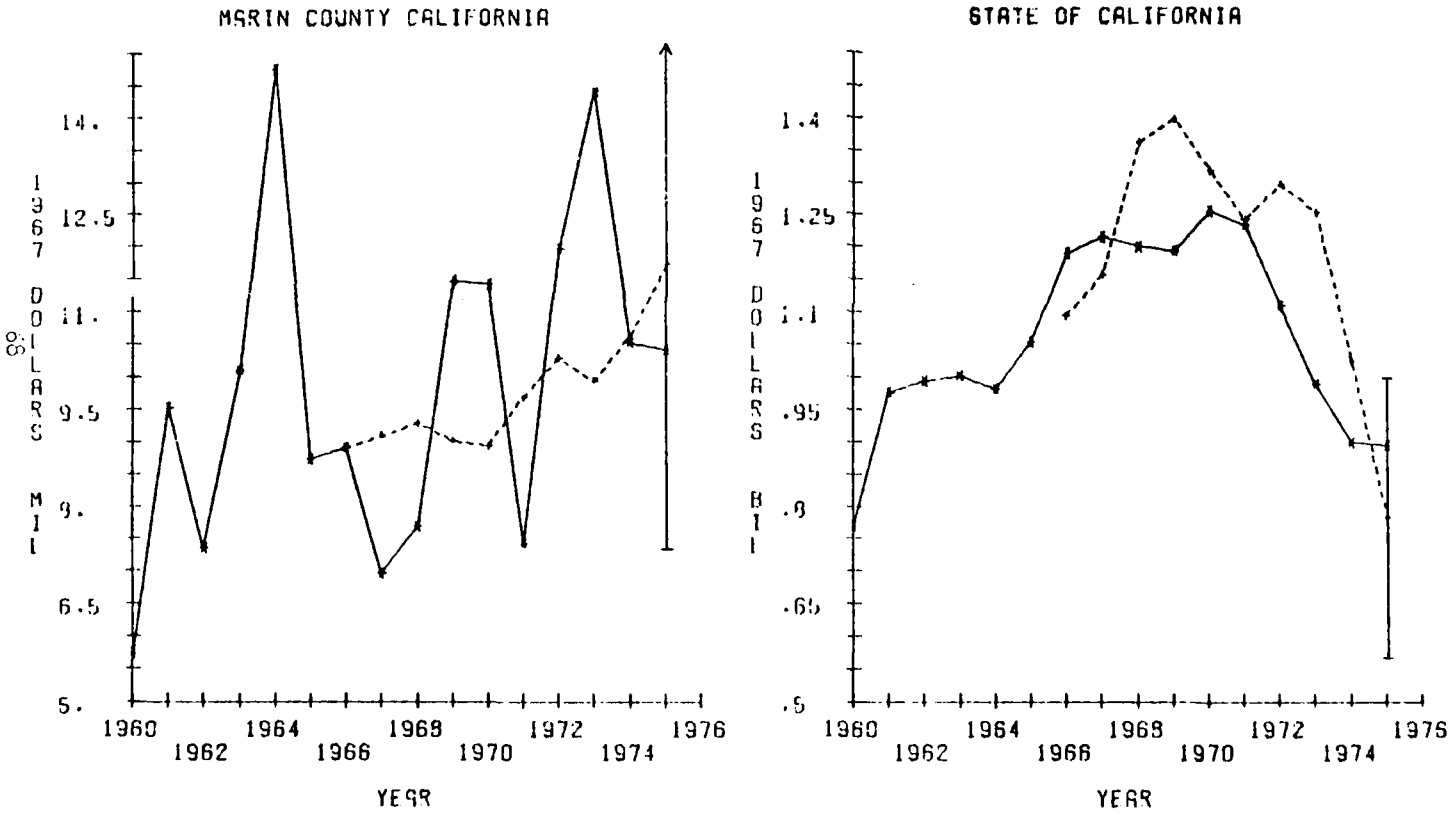
TOTAL EXPENDITURES ON HIGHWAYS, ROADS, AND STREETS

Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	5.72		.768	
1961	9.52		.976	
1962	7.36		.992	
1963	10.11		1.001	
1964	14.74		.981	
1965	8.72		1.053	
1966	8.91	8.89	1.189	1.09
1967	6.96	9.08	1.213	1.16
1968	7.69	9.27	1.198	1.36
1969	11.47	9	1.192	1.39
1970	11.40	8.92	1.254	1.32
1971	7.42	9.66	1.232	1.24
1972	11.97	10.28	1.108	1.30
1973	14.39	9.93	.987	1.25
1974	10.51	10.62	.897	1.02
1975	10.40	11.72	.892	.78

Forecast	County	State
Smoothing Type	3	3
Alpha	.068	.390
MAD	2.132	.130
90%± Safety Interval	4.40	.268
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

TOTAL EXPENDITURES ON HIGHWAYS, ROADS, + STREETS

* ACTUAL
\+ FORECAST



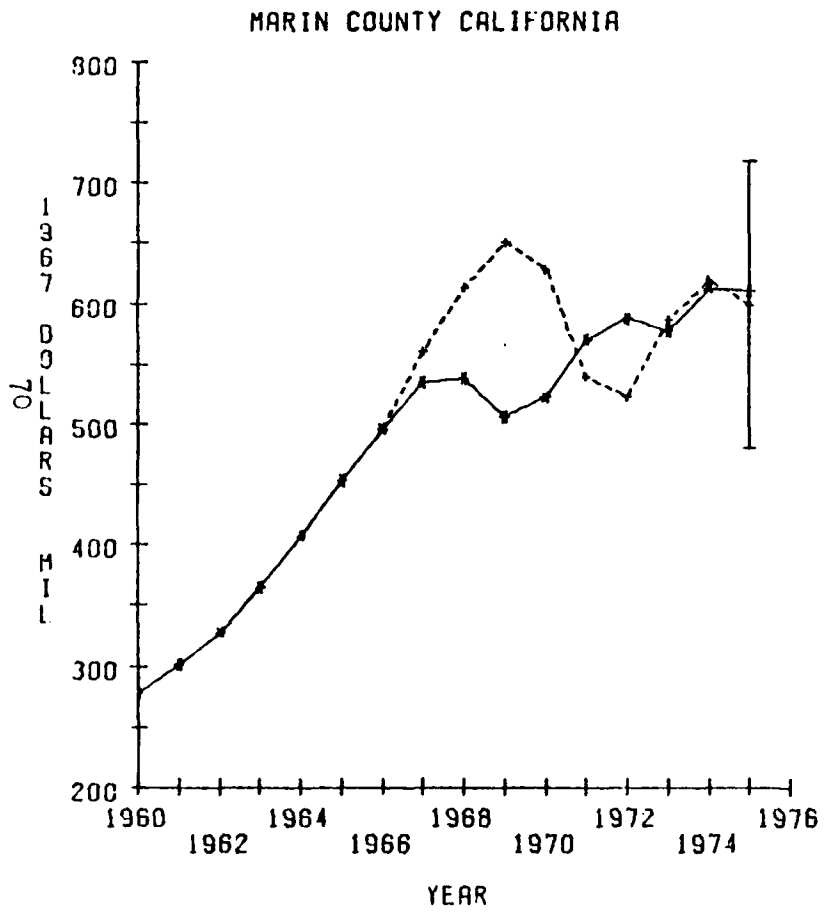
NET TAXABLE ASSESSED VALUE

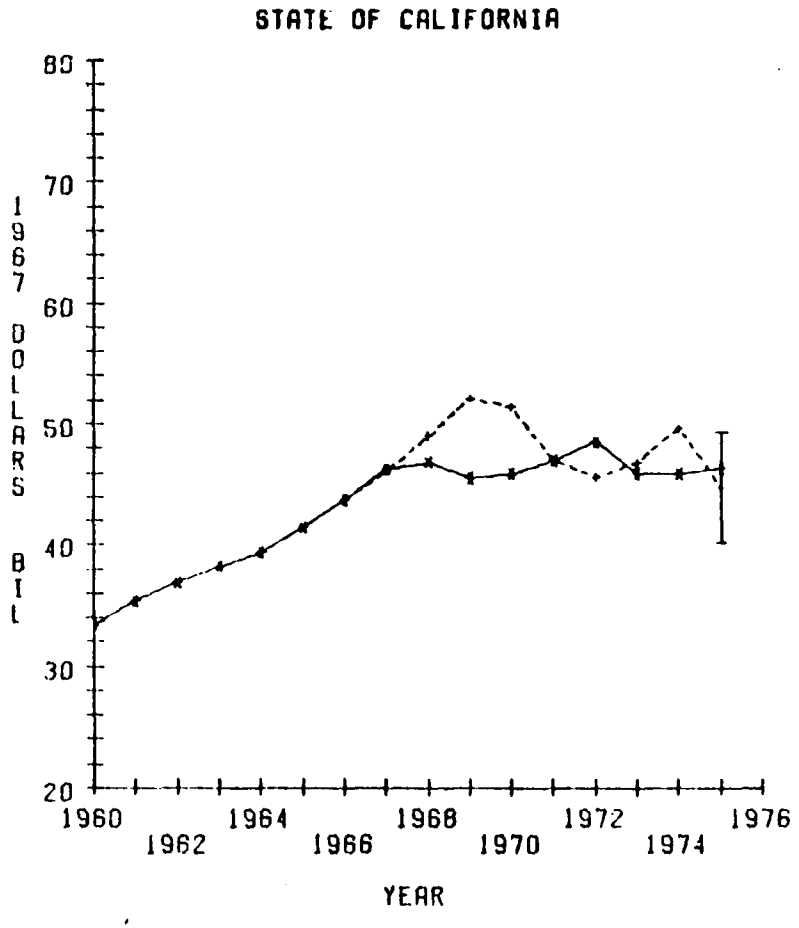
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	277		33.3	
1961	301		35.3	
1962	327		36.8	
1963	364		38.2	
1964	407		39.3	
1965	453		41.4	
1966	496	496	43.7	43.6
1967	535	560	46.2	46.0
1968	538	613	46.7	49.0
1969	506	651	45.5	52
1970	522	628	45.8	51.3
1971	570	539	46.8	46.8
1972	587	522	48.4	45.5
1973	577	586	45.8	46.6
1974	612	619	45.8	49.5
1975	610	598	46.2	44.6

Forecast	County	State
Smoothing Type	3	3
Alpha	.379	.425
MAD	57	2.29
90%± Safety Interval	118	4.71
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

NET TAXABLE ASSESSED VALUE

* ACTUAL
\+ FORECAST





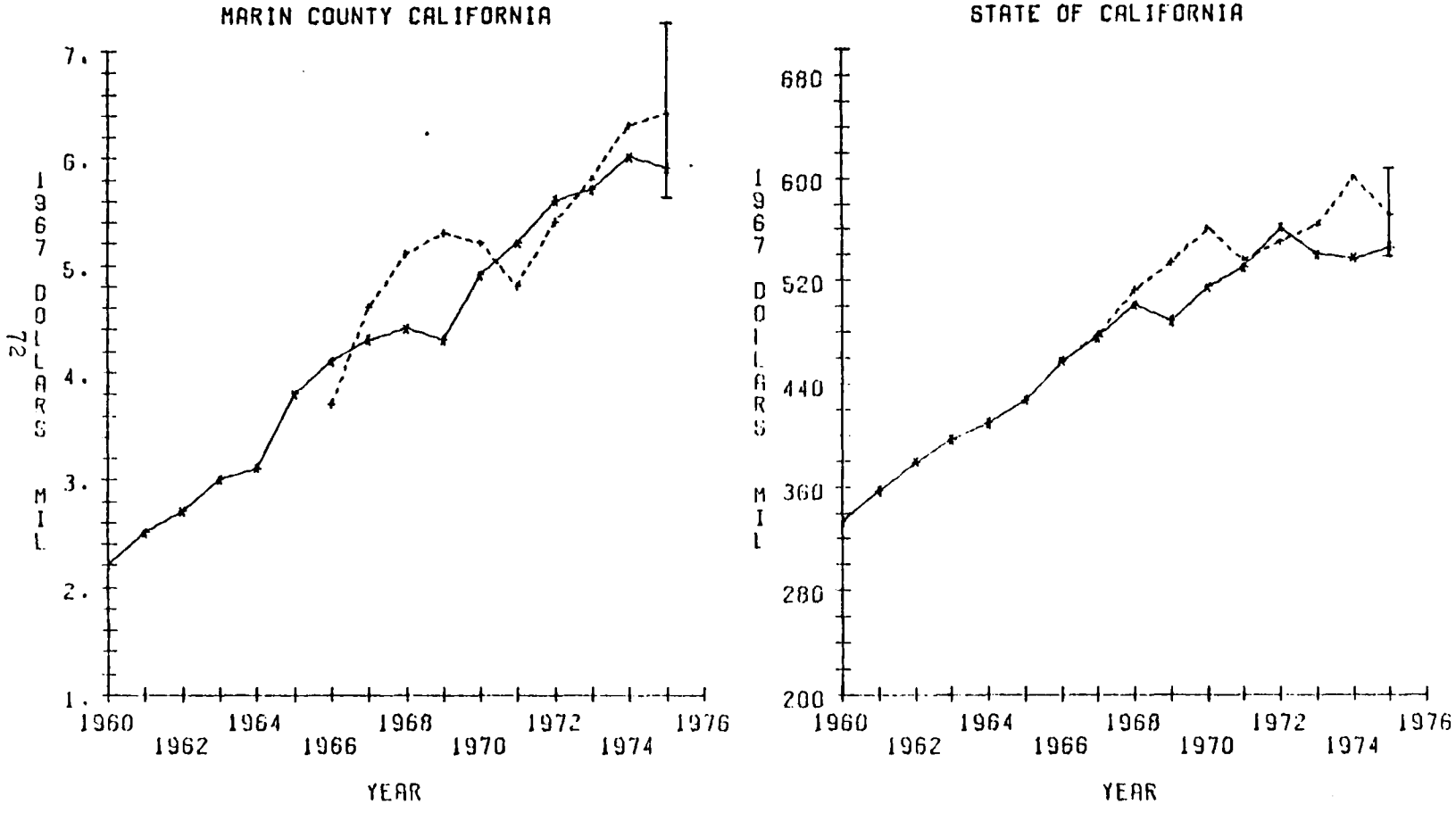
TAXES LEVIED IN CITY

Year	County(MIL)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	2.2		333	
1961	2.5		357	
1962	2.7		379	
1963	3		397	
1964	3.1		410	
1965	3.8		428	
1966	4.1	3.7	458	458
1967	4.3	4.6	476	478
1968	4.4	5.1	501	513
1969	4.3	5.3	489	534
1970	4.9	5.2	515	560
1971	5.2	4.8	530	536
1972	5.6	5.4	561	550
1973	5.7	5.8	540	563
1974	6	6.3	537	599
1975	5.9	6.4	546	570

Forecast	County	State
Smoothing Type	3	3
Alpha	.342	.340
MAD	.4	18
90%± Safety Interval	.825	37.1
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

TAXES LEVIED IN CITY

* ACTUAL
\+ FORECAST



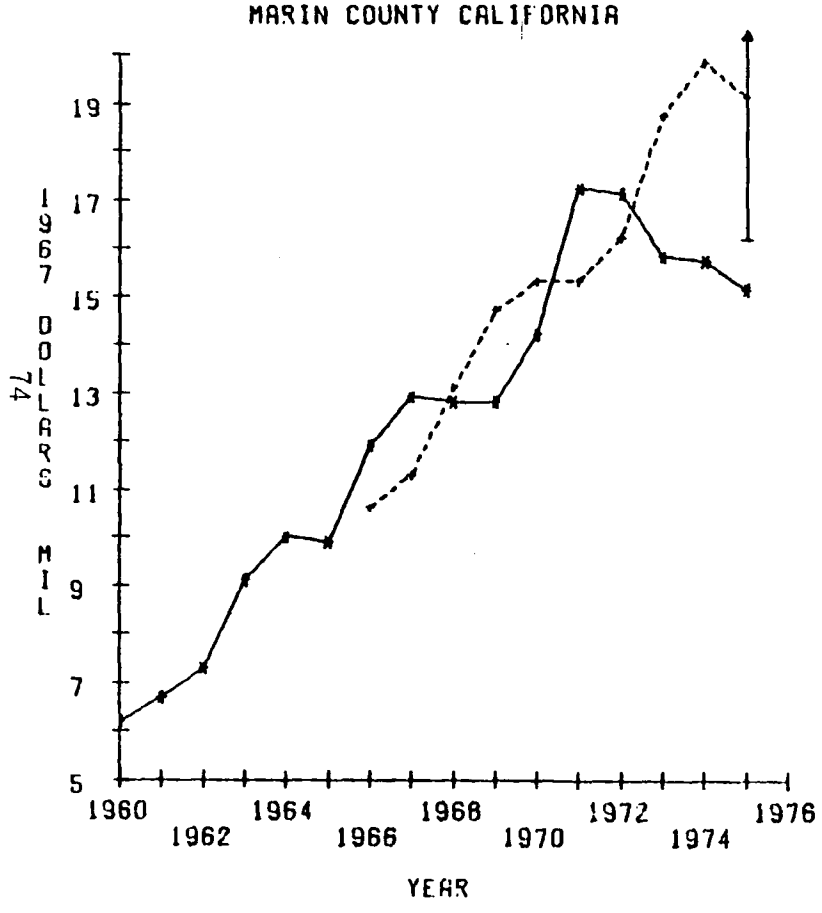
TAXES LEVIED IN COUNTY

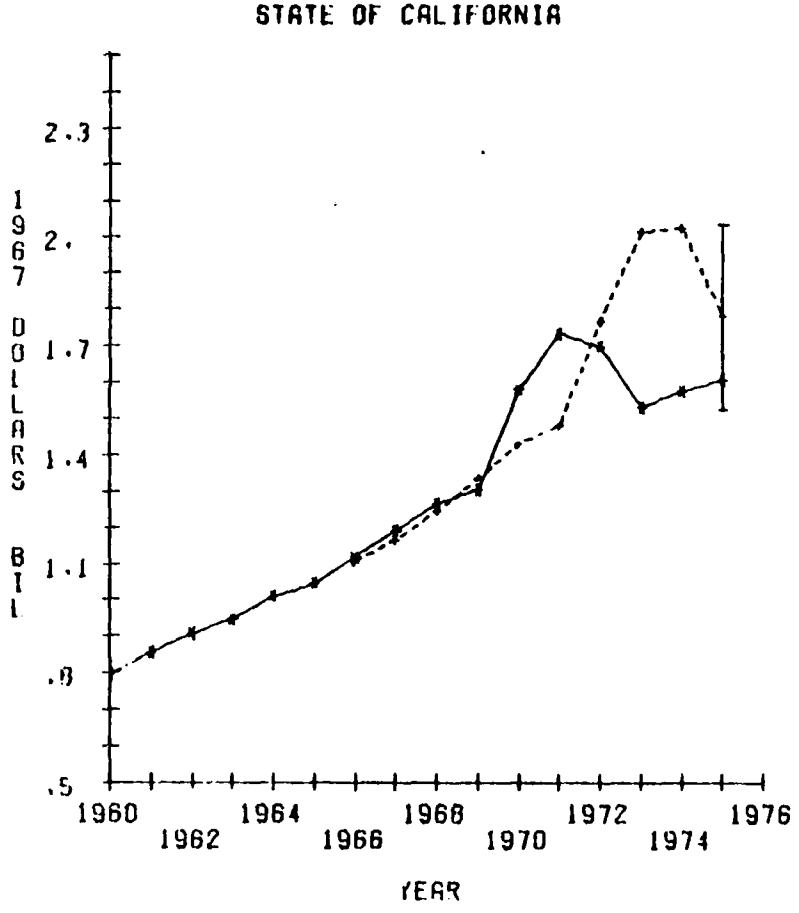
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	6.2		.796	
1961	6.7		.857	
1962	7.3		.906	
1963	9.1		.946	
1964	10		1.009	
1965	9.9		1.045	
1966	11.9	10.6	1.116	1.101
1967	12.9	11.3	1.190	1.162
1968	12.8	13.1	1.265	1.244
1969	12.8	14.7	1.303	1.336
1970	14.2	15.3	1.579	1.428
1971	17.2	15.3	1.732	1.478
1972	17.1	16.2	1.698	1.767
1973	15.8	18.7	1.529	2.015
1974	15.7	19.8	1.575	2.024
1975	15.1	19.1	1.606	1.781

Forecast	County	State
Smoothing Type	3	3
Alpha	.212	.285
MAD	1.50	.132
90%± Safety Interval	3.09	.272
Decision Scheme		
Inside Safety Interval		X
Outside Safety Interval	X	
Significant Change	Yes	

TAXES LEVIED IN COUNTY

* ACTUAL
\+ FORECAST





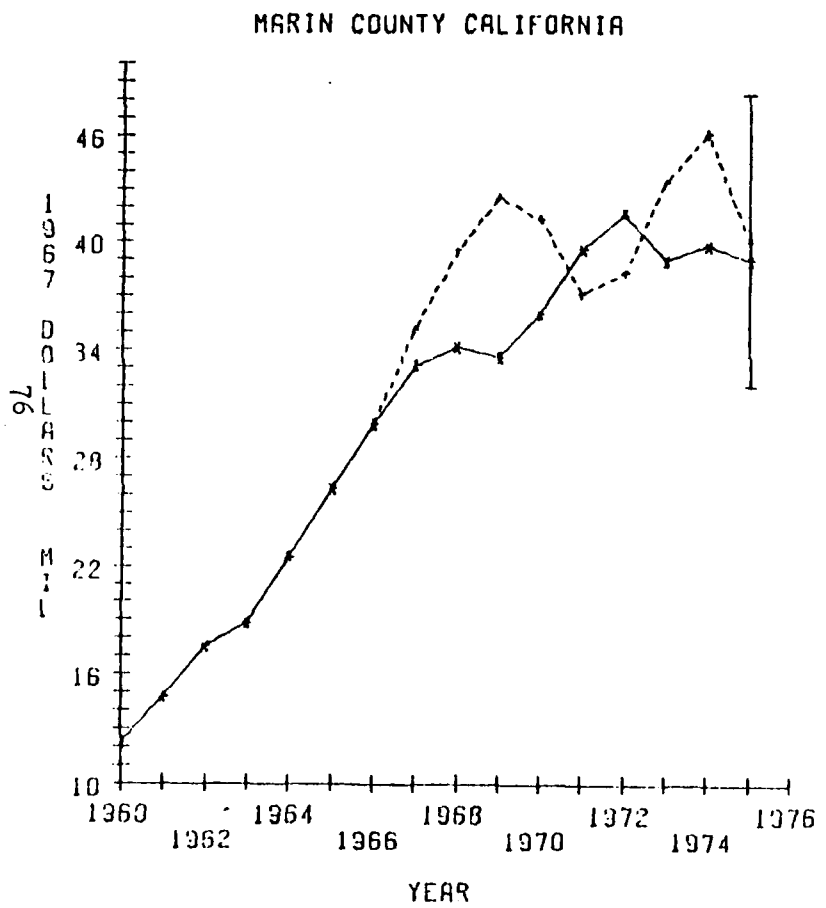
TAXES LEVIED IN SCHOOL

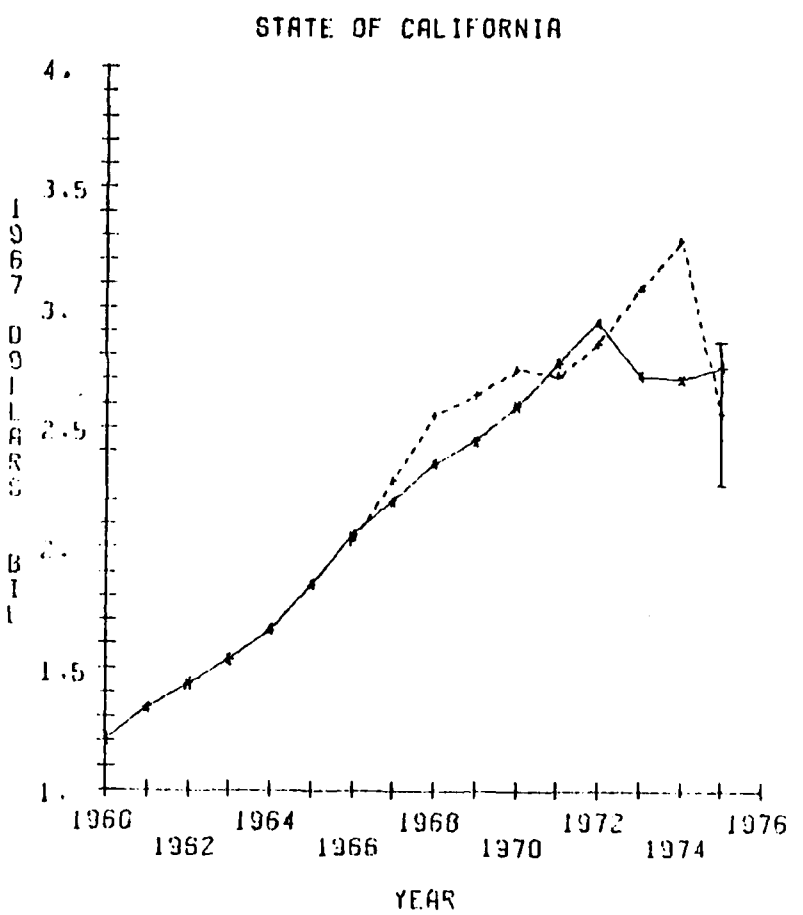
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	12.2		1.20	
1961	14.7		1.34	
1962	17.5		1.44	
1963	18.8		1.54	
1964	22.5		1.66	
1965	26.3		1.85	
1966	29.9	29.9	2.05	2.03
1967	33.1	35.1	2.20	2.28
1968	34.1	39.5	2.35	2.55
1969	33.6	42.5	2.44	2.64
1970	36	41.3	2.59	2.74
1971	39.6	37.1	2.77	2.71
1972	41.6	38.3	2.93	2.85
1973	39	43.4	2.71	3.08
1974	39.8	46.1	2.70	3.28
1975	39	40.1	2.75	2.56

Forecast	County	State
Smoothing Type	3	3
Alpha	.410	.509
MAD	4	.144
90%± Safety Interval	8.25	.297
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

TAXES LEVIED FOR SCHOOLS

* ACTUAL
\+ FORECAST





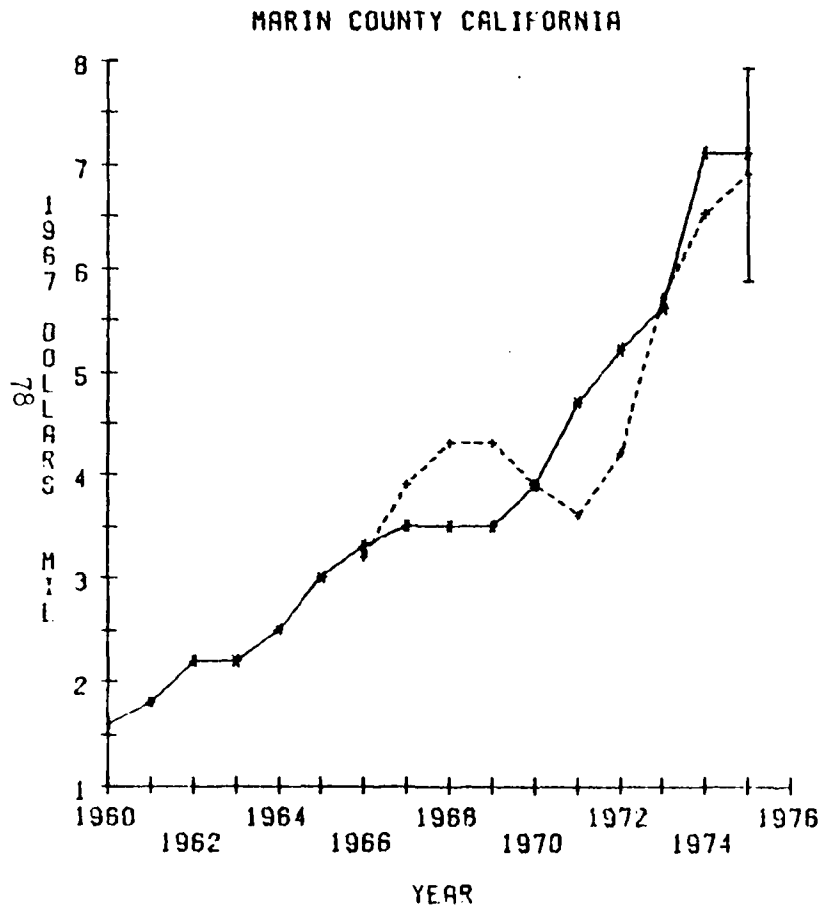
TAXES LEVIED IN OTHER DISTRICTS

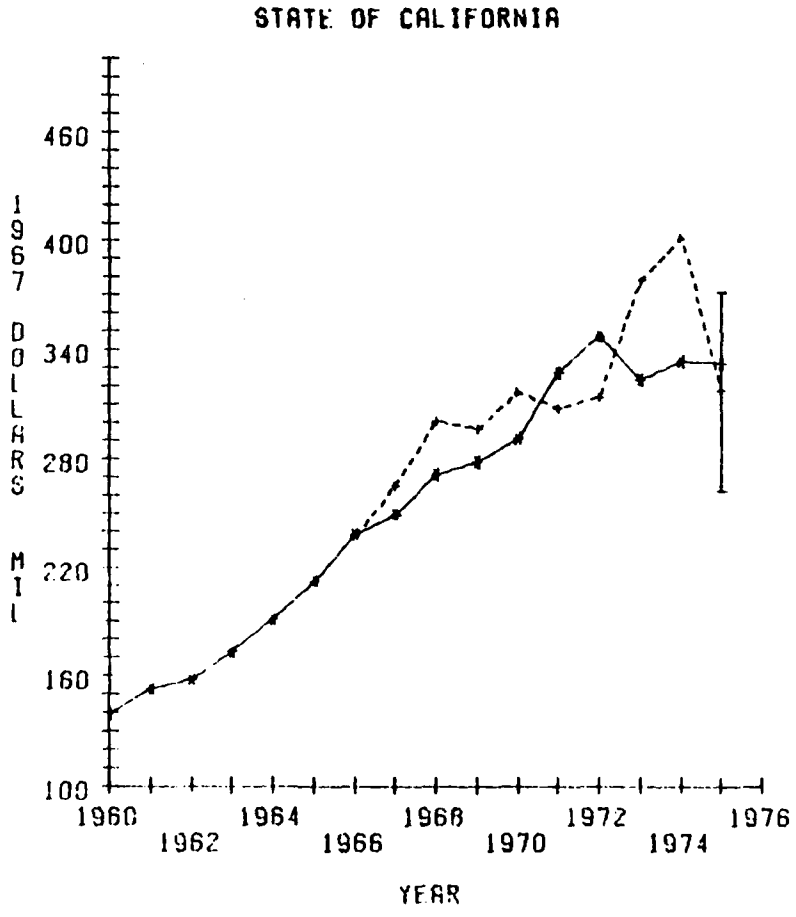
Year	County(MIL)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	1.6		139	
1961	1.8		153	
1962	2.2		158	
1963	2.2		173	
1964	2.5		191	
1965	3		212	
1966	3.3	3.2	238	237
1967	3.5	3.9	249	265
1968	3.5	4.3	271	300
1969	3.5	4.3	278	296
1970	3.9	3.9	291	316
1971	4.7	3.6	327	307
1972	5.2	4.2	347	313
1973	5.6	5.7	323	377
1974	7.1	6.5	333	401
1975	7.1	6.9	332	317

Forecast	County	State
Smoothing Type	3	3
Alpha	.455	.500
MAD	.5	25
90%± Safety Interval	1.03	51.6
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

TAXES LEVIED IN OTHER DISTRICTS

* ACTUAL
\+ FORECAST





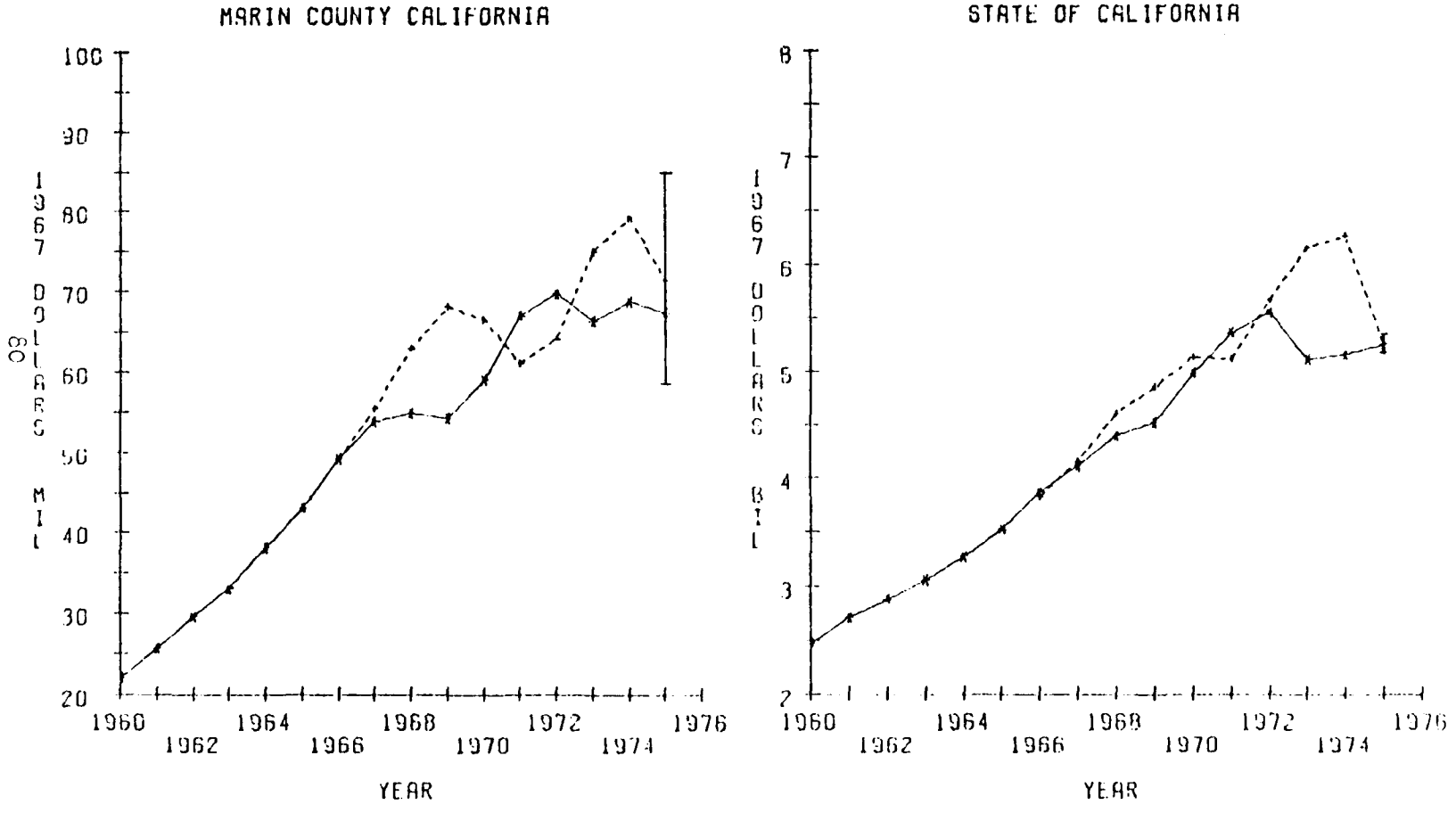
TAXES LEVIED TOTAL

Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	22.0		2.47	
1961	25.6		2.70	
1962	29.6		2.88	
1963	33		3.05	
1964	38.1		3.27	
1965	43		3.53	
1966	49.1	48.9	3.86	3.83
1967	53.8	55.4	4.11	4.16
1968	54.8	62.9	4.39	4.59
1969	54.2	68	4.51	4.85
1970	59	66.4	4.98	5.12
1971	66.9	61	5.35	5.11
1972	69.6	64.1	5.54	5.64
1973	66.2	74.9	5.11	6.14
1974	68.6	79	5.14	6.26
1975	67.3	71.3	5.23	5.25

Forecast	County	State
Smoothing Type	3	3
Alpha	.376	.403
MAD	6.4	.268
90%± Safety Interval	13.2	.053
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

TAXES LEVIED TOTAL

* ACTUAL
\+ FORECAST



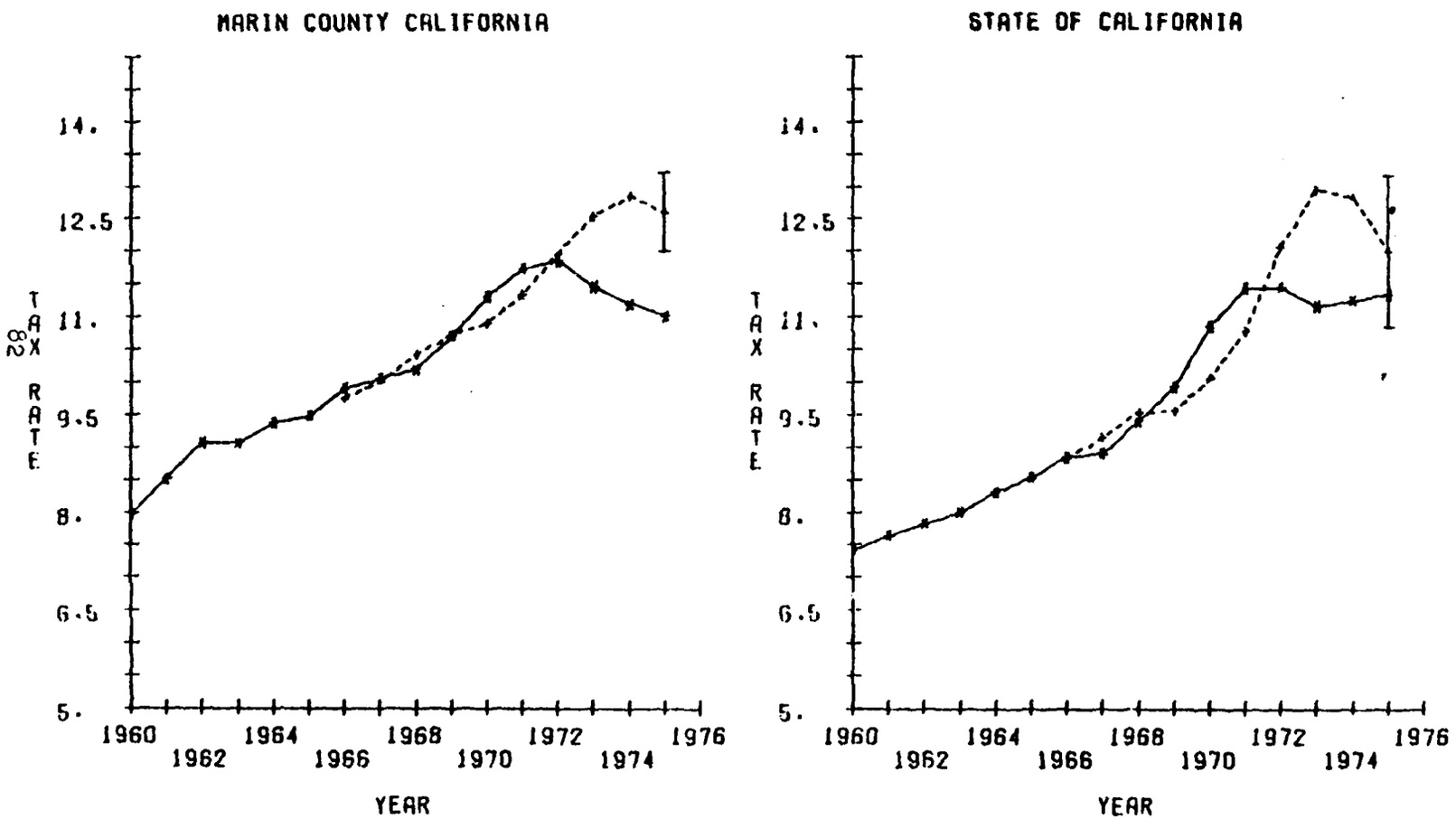
AVERAGE TAX RATE PER $100 OF ASSESSED VALUE

Year	County( )		State( )	
	Actual	Forecast	Actual	Forecast
1960	7.96		7.42	
1961	8.51		7.65	
1962	9.07		7.82	
1963	9.06		8	
1964	9.37		8.31	
1965	9.48		8.53	
1966	9.9	9.74	8.84	8.82
1967	10.06	10.01	8.9	9.15
1968	10.19	10.43	9.39	9.53
1969	10.71	10.72	9.92	9.55
1970	11.31	10.90	10.85	10.06
1971	11.74	11.33	11.43	10.77
1972	11.85	11.95	11.44	12.05
1973	11.46	12.53	11.15	12.94
1974	11.20	12.84	11.24	12.82
1975	11.02	12.60	11.33	11.98

Forecast	County	State
Smoothing Type	3	3
Alpha	.211	.345
MAD	.305	.578
90%± Safety Interval	.629	1.10
Decision Scheme		
Inside Safety Interval		X
Outside Safety Interval	X	
Significant Change	Yes	

AVG TAX RATE PER $100 OF ASSESSED VALUE

* ACTUAL
\+ FORECAST



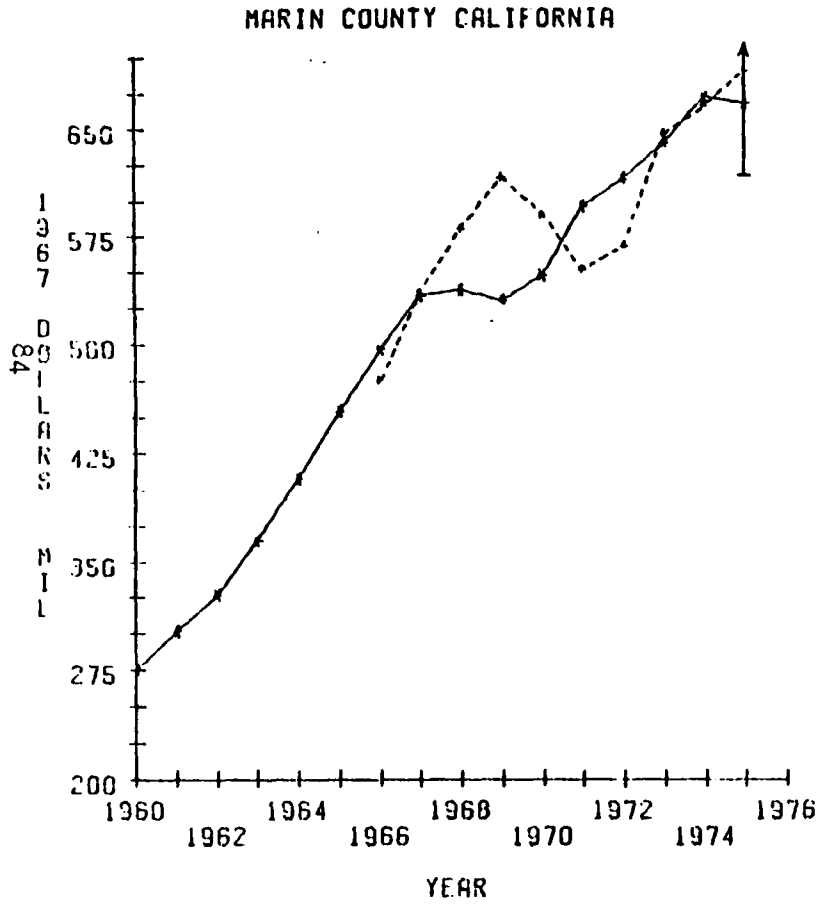
ASSESSED VALUATION OF TOTAL TANGIBLE
PROPERTY SUBJECT TO LOCAL TAXATION

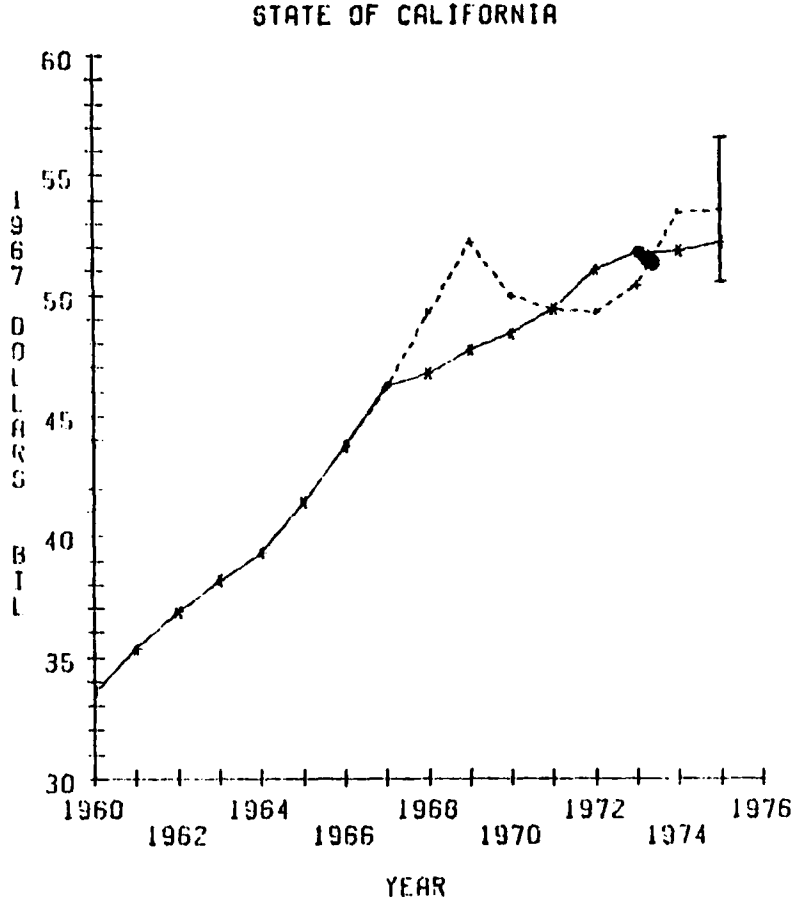
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	276		33.6	
1961	302		35.3	
1962	327		36.8	
1963	364		38.2	
1964	407		39.3	
1965	454		41.4	
1966	496	475	43.7	43.7
1967	534	535	46.2	46.2
1968	538	580	46.7	49.2
1969	531	615	47.7	52.2
1970	548	590	48.4	49.9
1971	596	552	49.4	49.4
1972	615	568	51	49.2
1973	640	647	51.7	50.4
1974	672	667	51.8	53.4
1975	667	690	52.2	53.5

Forecast	County	State
Smoothing Type	2	3
Alpha	.667	.537
MAD	36.1	1.46
90%± Safety Interval	74.4	3.01
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

ASS VALUE OF TOT TANG PROP SUBJ TO LOCAL TAX

* ACTUAL
\+ FORECAST





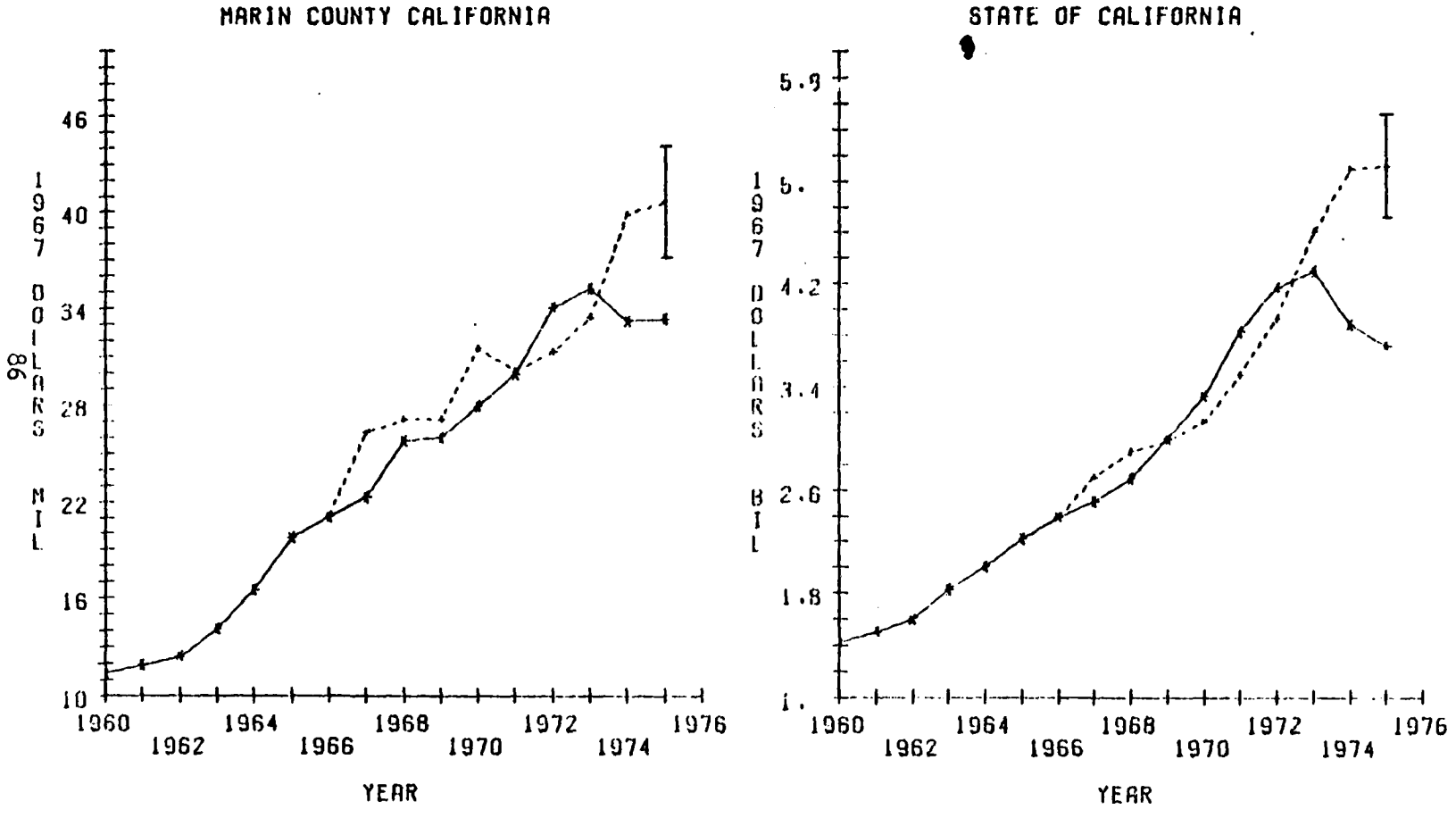
FINANCIAL TRANSACTIONS CONCERNING
COUNTIES RECEIPTS

Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	11.4		1.42	
1961	11.9		1.51	
1962	12.4		1.60	
1963	14.1		1.83	
1964	16.5		2	
1965	19.7		2.22	
1966	21	21	2.39	2.39
1967	22.3	26.2	2.51	2.69
1968	25.8	27.1	2.68	2.90
1969	26	27.1	2.99	2.99
1970	27.9	31.5	3.32	3.13
1971	29.9	30.1	3.83	3.49
1972	34	31.3	4.17	3.92
1973	35.2	33.4	4.29	4.61
1974	33.2	39.9	3.87	5.08
1975	33.3	40.7	3.72	5.11

Forecast	County	State
Smoothing Type	3	3
Alpha	.441	.360
MAD	1.86	.189
90%± Safety Interval	3.83	.390
Decision Scheme		
Inside Safety Interval		
Outside Safety Interval	X	X
Significant Change	Not Determinable	

FINANCIAL TRANSACTIONS FOR COUNTIES--RECEIPTS

* ACTUAL
\+ FORECAST



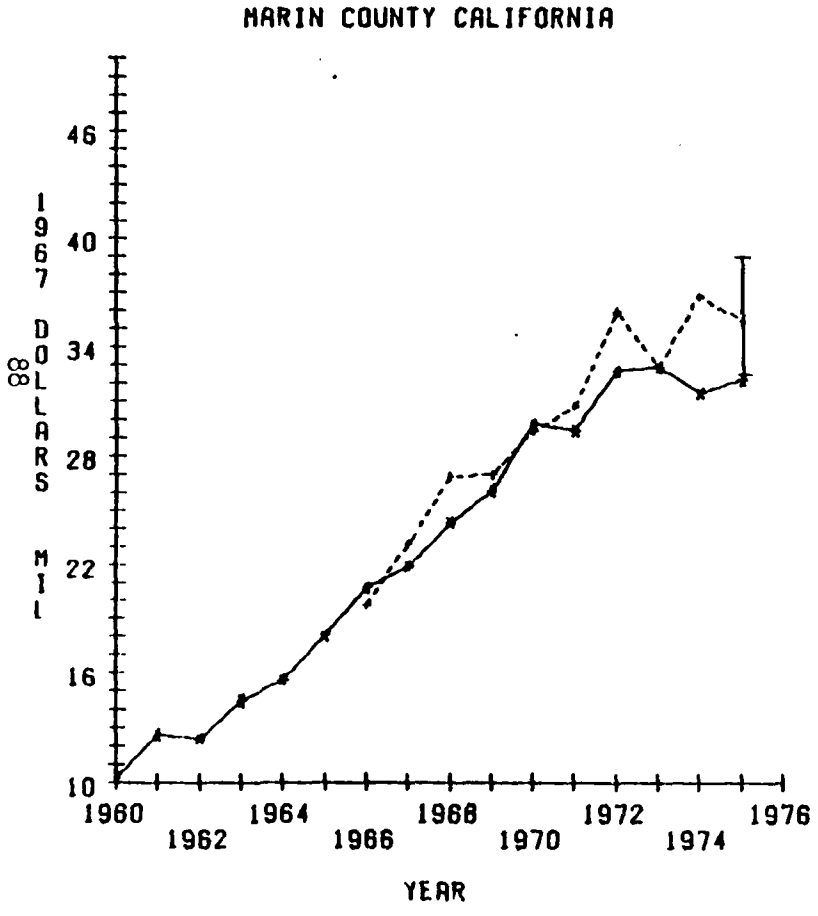
FINANCIAL TRANSACTIONS CONCERNING
COUNTIES PAYMENTS

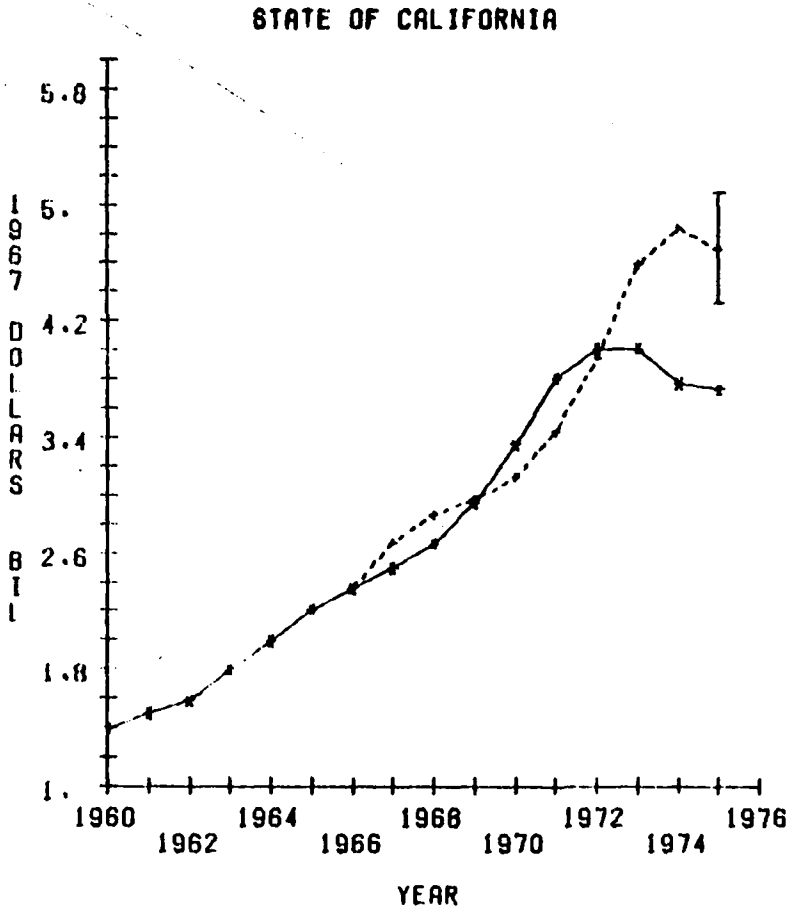
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	10.3		1.39	
1961	12.6		1.50	
1962	12.4		1.59	
1963	14.5		1.80	
1964	15.7		1.99	
1965	18.1		2.21	
1966	20.7	19.7	2.36	2.36
1967	21.9	23.2	2.49	2.68
1968	24.3	26.9	2.66	2.86
1969	26	27	2.95	2.98
1970	29.8	29.3	3.34	3.12
1971	29.4	30.7	3.80	3.43
1972	32.7	36	4	3.94
1973	32.9	32.9	4	4.58
1974	31.4	36.8	3.77	4.83
1975	32.2	35.4	3.72	4.68

Forecast	County	State
Smoothing Type	3	3
Alpha	.464	.348
MAD	1.36	.204
90%± Safety Interval	2.81	.421
Decision Scheme		
Inside Safety Interval		
Outside Safety Interval	X	X
Significant Change	Not Determinable	

FINANCIAL TRANSACTIONS FOR COUNTIES--PAYMENTS

x ACTUAL
+ FORECAST





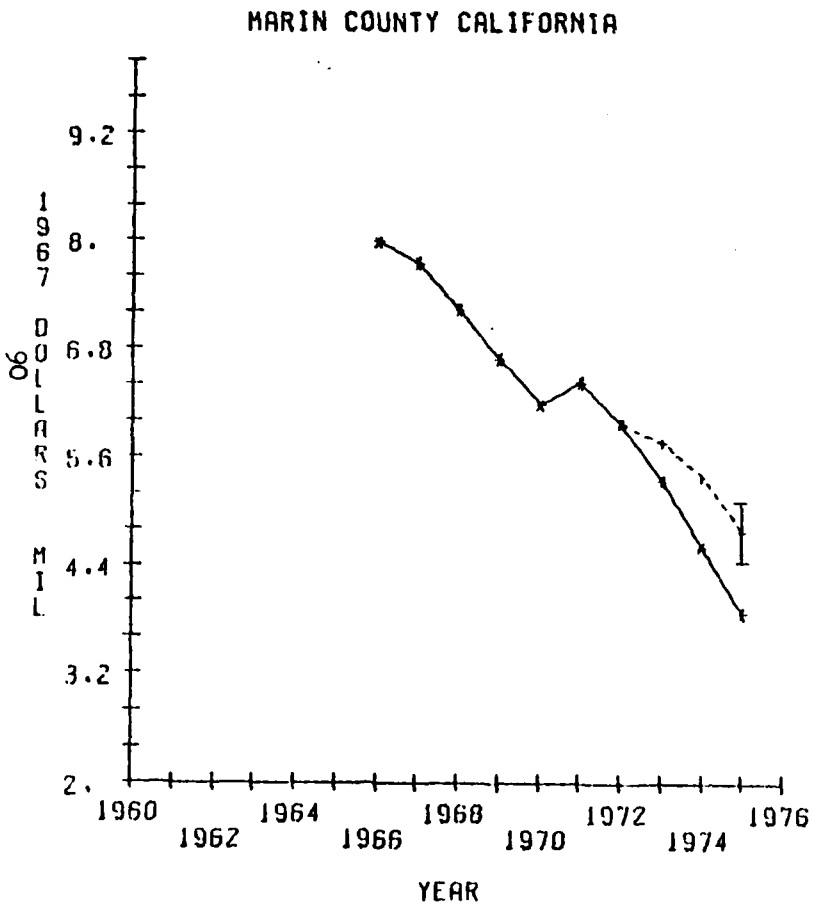
FINANCIAL TRANSACTIONS CONCERNING
COUNTIES BONDED INDEBTED

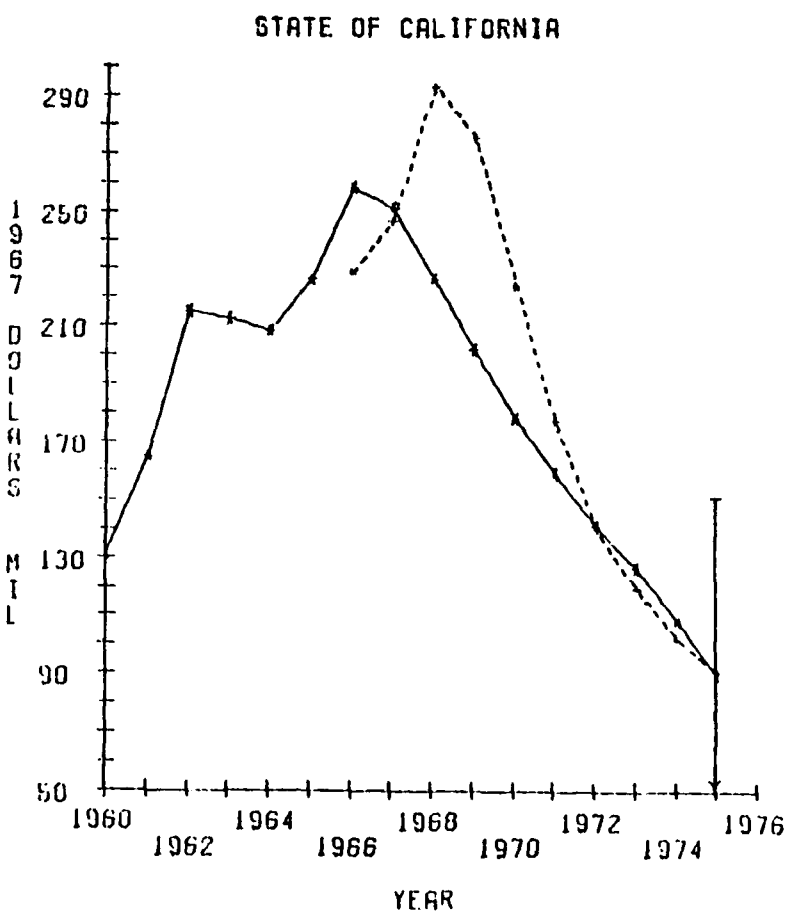
Year	County(MIL)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	-		131	
1961	-		165	
1962	-		215	
1963	-		213	
1964	-		209	
1965	-		226	
1966	7.98		258	229
1967	7.75		251	246
1968	7.23		227	293
1969	6.68		201	275
1970	6.17		178	224
1971	6.42		159	177
1972	5.97	5.97	141	141
1973	5.34	5.76	127	120
1974	4.60	5.38	108	102
1975	3.86	4.77	89	91

Forecast	County	State
Smoothing Type	3	2
Alpha	.199	.617
MAD	.210	30.6
90%± Safety Interval	.433	63.0
Decision Scheme		
Inside Safety Interval		X
Outside Safety Interval	X	
Significant Change	Yes	

FIN TRANSACTIONS FOR COUNTIES--BOND INDEBT

* ACTUAL
\+ FORECAST





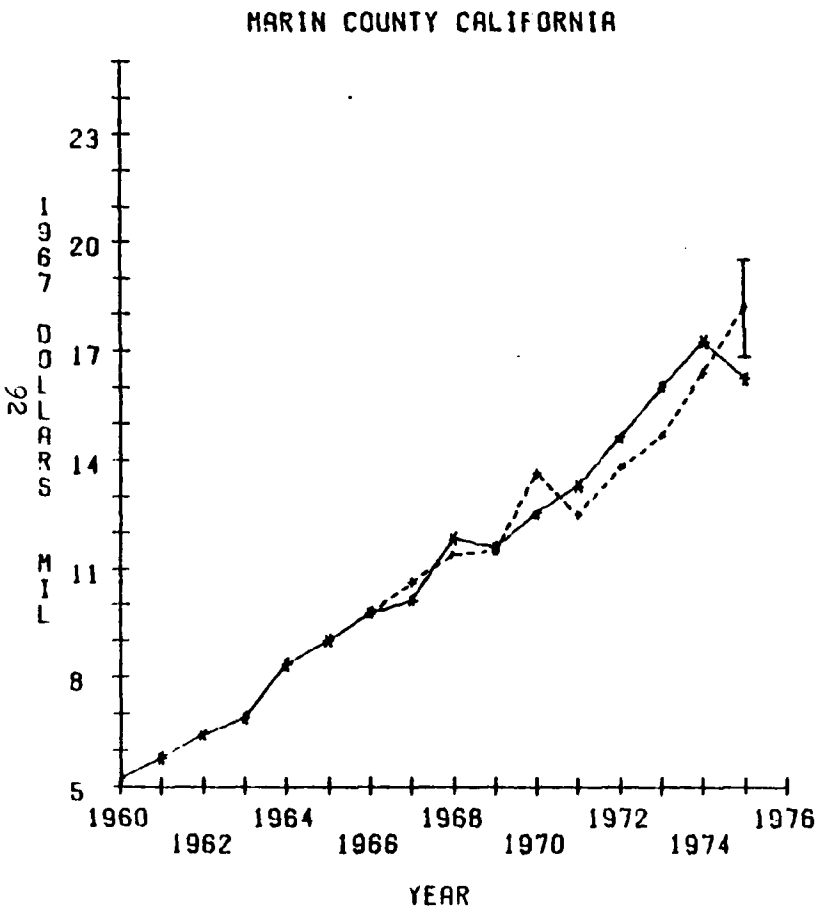
FINANCIAL TRANSACTIONS CONCERNING
CITIES RECEIPTS

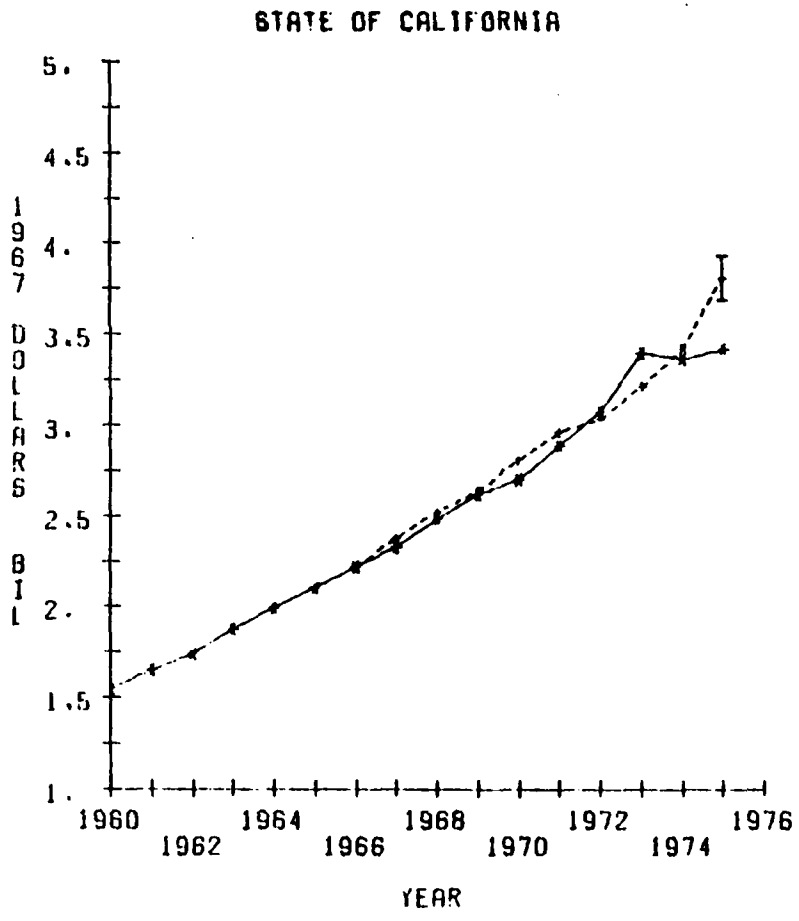
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	5.27		1.55	
1961	5.80		1.65	
1962	6.44		1.74	
1963	6.92		1.88	
1964	8.36		1.99	
1965	9.02		2.10	
1966	9.79	9.80	2.22	2.22
1967	10.15	10.64	2.33	2.38
1968	11.83	11.40	2.48	2.52
1969	11.57	11.50	2.62	2.64
1970	12.52	13.65	2.70	2.81
1971	13.28	12.94	2.88	2.96
1972	14.63	13.81	3.07	3.04
1973	16.02	14.67	3.39	3.21
1974	17.27	16.41	3.36	3.42
1975	16.25	18.21	3.42	3.80

Forecast	County	State
Smoothing Type	2	3
Alpha	.600	.307
MAD	.579	.064
90%± Safety Interval	1.19	.132
Decision Scheme		
Inside Safety Interval		
Outside Safety Interval	X	X
Significant Change	Not Determinable	

FIN TRANSACTIONS FOR CITIES--RECEIPTS

* ACTUAL
\+ FORECAST





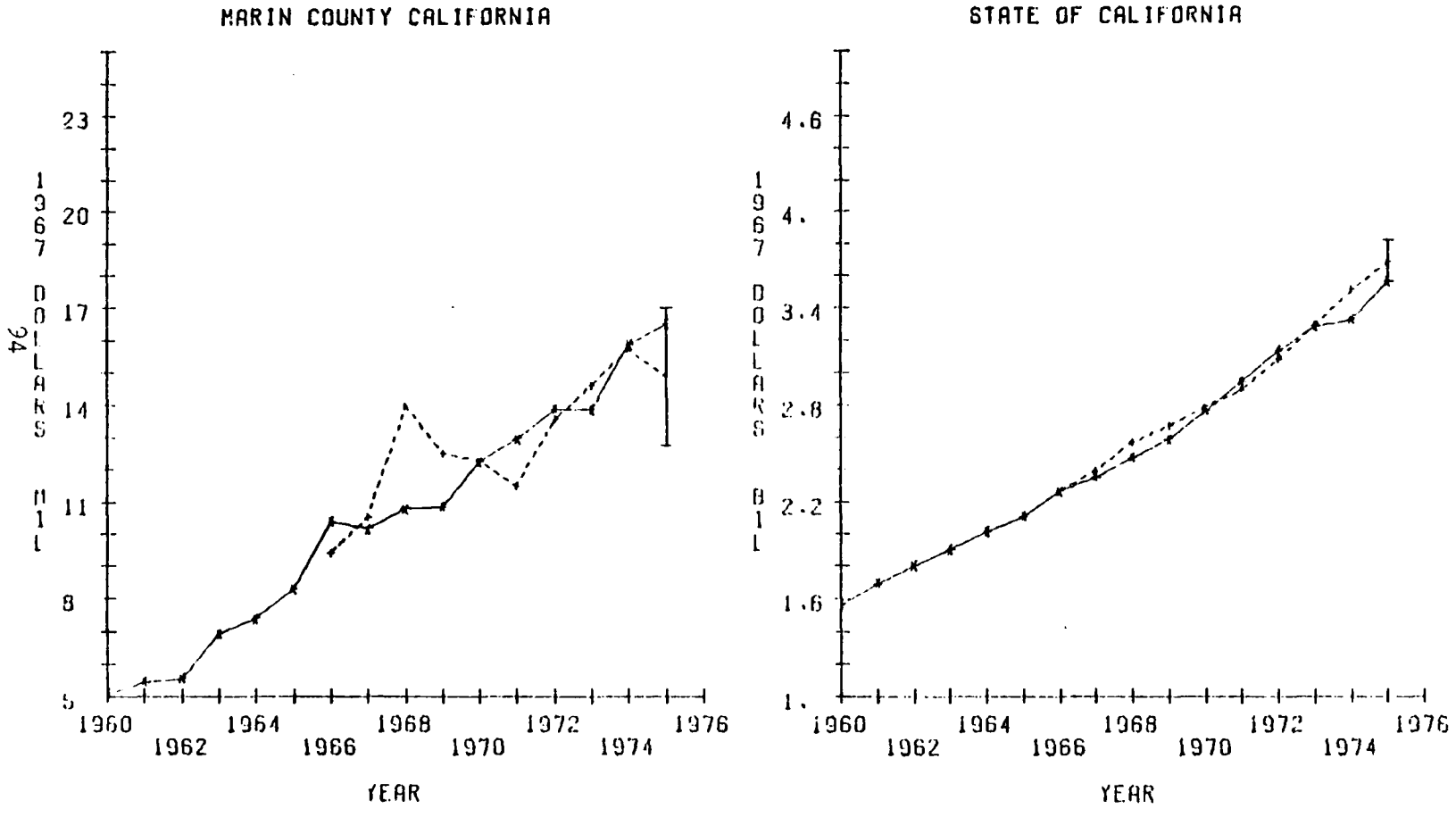
FINANCIAL TRANSACTIONS CONCERNING
CITIES PAYMENTS

Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	5.10		1.57	
1961	5.48		1.70	
1962	5.57		1.81	
1963	6.94		1.90	
1964	7.39		2.02	
1965	8.31		2.11	
1966	10.40	9.42	2.26	2.26
1967	10.16	10.52	2.35	2.39
1968	10.76	13.94	2.47	2.57
1969	10.84	12.48	2.58	2.67
1970	12.21	12.22	2.76	2.78
1971	12.93	11.46	2.94	2.89
1972	13.86	13.56	3.13	3.08
1973	13.85	14.58	3.28	3.29
1974	15.85	15.72	3.32	3.51
1975	16.50	14.89	3.56	3.69

Forecast	County	State
Smoothing Type	3	3
Alpha	.462	.320
MAD	1.082	.044
90%± Safety Interval	2.23	.091
Decision Scheme		
Inside Safety Interval	X	
Outside Safety Interval		X
Significant Change	No	

FINANCIAL TRANSACTIONS FOR CITIES--PAYMENTS

* ACTUAL
\+ FORECAST



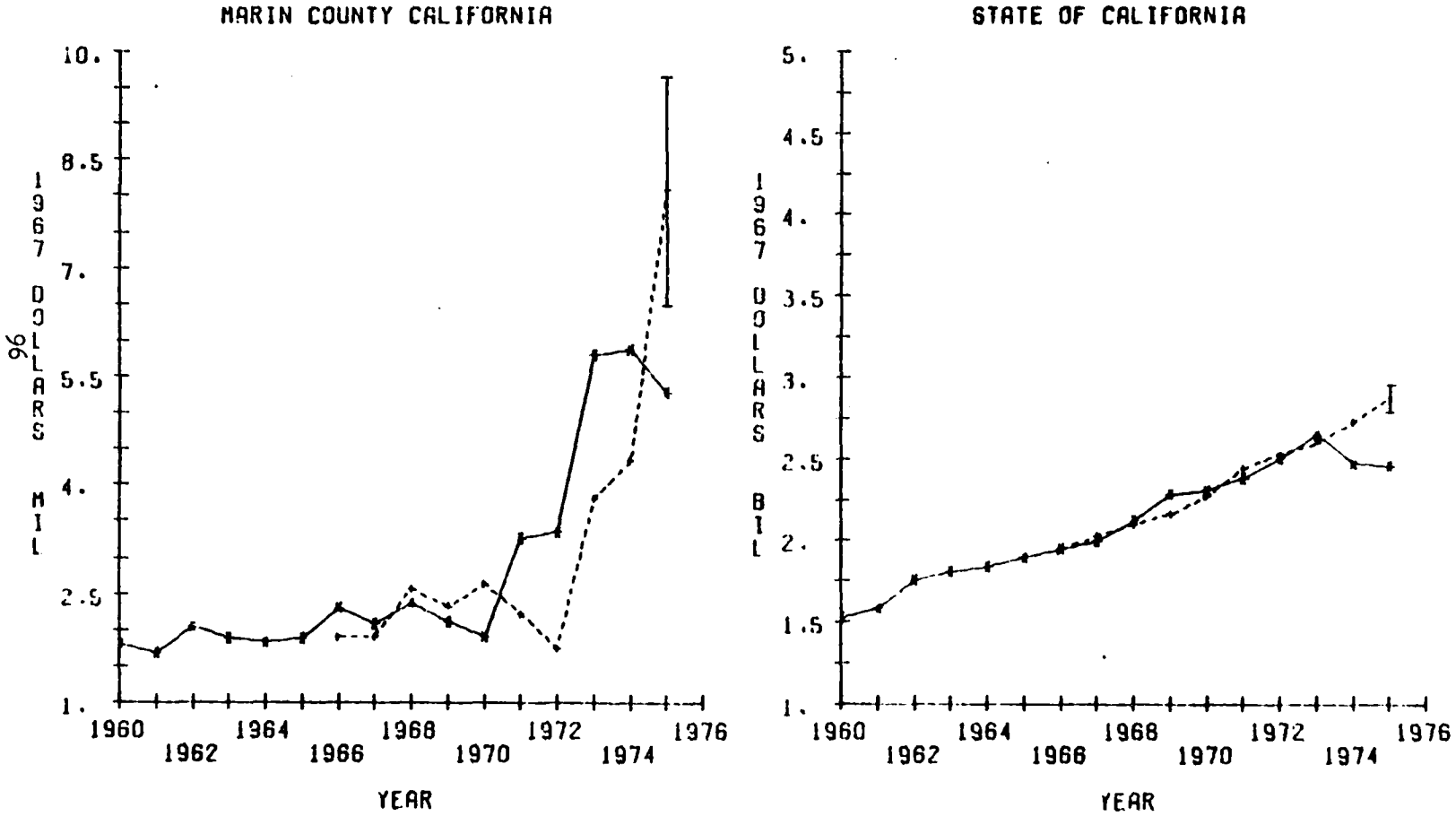
FINANCIAL TRANSACTIONS CONCERNING
CITIES BONDED INDEBTEDNESS

Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	1.80		1.52	
1961	1.68		1.58	
1962	2.04		1.75	
1963	1.88		1.80	
1964	1.83		1.83	
1965	1.88		1.89	
1966	2.30	1.90	1.95	1.95
1967	2.08	1.90	1.99	2.02
1968	2.36	2.56	2.12	2.10
1969	2.11	2.32	2.28	2.15
1970	1.91	2.62	2.30	2.27
1971	3.26	2.21	2.38	2.44
1972	3.34	1.74	2.50	2.52
1973	5.79	3.81	2.64	2.60
1974	5.86	4.32	2.46	2.72
1975	5.28	8.07	2.45	2.86

Forecast	County	State
Smoothing Type	3	3
Alpha	.385	.221
MAD	.794	.0426
90%± Safety Interval	1.64	.088
Decision Scheme		
Inside Safety Interval		
Outside Safety Interval	X	X
Significant Change	Not Determinable	

FIN TRANSACTIONS FOR CITIES--BOND INDEBT

* ACTUAL
\+ FORECAST



FINANCIAL TRANSACTIONS CONCERNING
SCHOOL DISTRICTS RECEIPTS

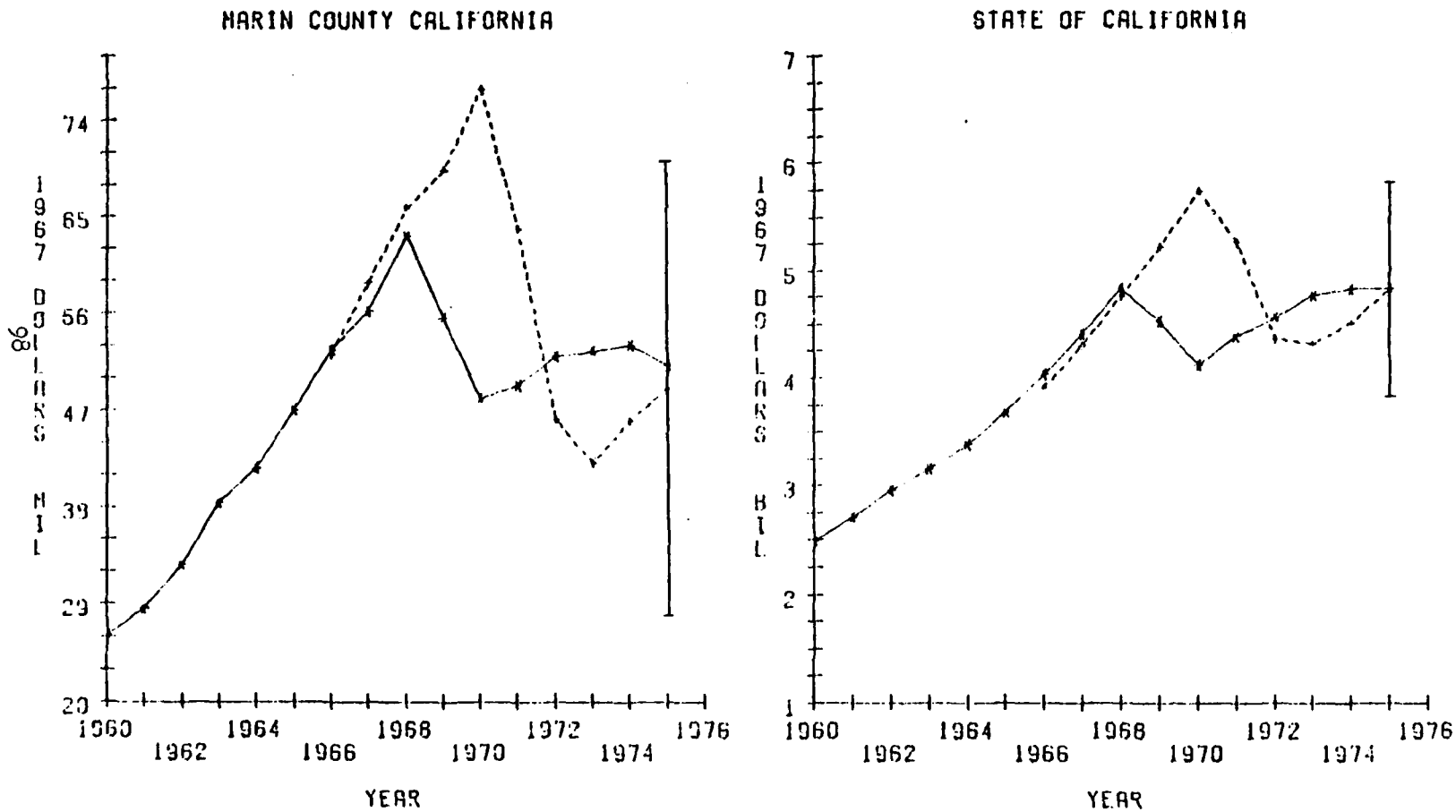
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	26.2		2.49	
1961	28.5		2.71	
1962	32.6		2.96	
1963	38.4		3.16	
1964	41.6		3.38	
1965	47		3.68	
1966	52.6	52.1	4.03	3.92
1967	56.1	58.8	4.40	4.30
1968	63.2	65.8	4.83	4.75
1969 *	55.7	69.4	4.53	5.22
1970	48.1	76.8	4.12	5.74
1971	49.2	63.8	4.39	5.27
1972	52	46	4.56	4.36
1973	52.4	42	4.76	4.32
1974	53	46	4.83	4.52
1975	51	48.9	4.84	4.83

*Not Available: Made linear estimate between 1968 and 1970

Forecast	County	State
Smoothing Type	3	3
Alpha	.359	.336
MAD	9.902	.516
90%± Safety Interval	20.4	1.06
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

FIN TRANSACTIONS FOR SCHL DIST-RECEIPTS

* ACTUAL
\+ FORECAST



FINANCIAL TRANSACTIONS CONCERNING
SCHOOL DISTRICTS PAYMENTS

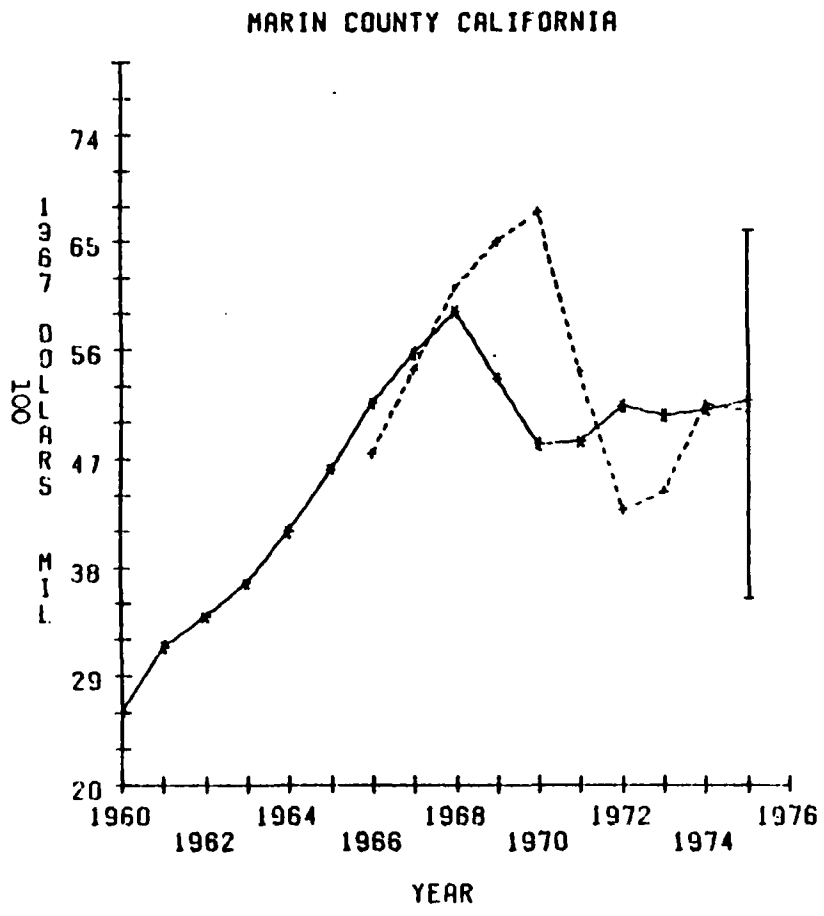
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	26.2		2.47	
1961	31.4		2.71	
1962	34		2.94	
1963	36.7		3.14	
1964	41		3.35	
1965	46.1		3.59	
1966	51.6	47.4	4.04	3.83
1967	55.7	54.4	4.33	4.15
1968	59.2	61.2	4.61	4.71
1969 *	53.7	65	4.34	5.12
1970	48.2	67.5	4.07	5.44
1971	48.4	54.3	4.34	5.02
1972	51.4	42.7	4.56	4.37
1973	50.6	44.3	4.62	4.38
1974	51.	51.5	4.68	4.62
1975	51.8	50.9	4.80	4.73

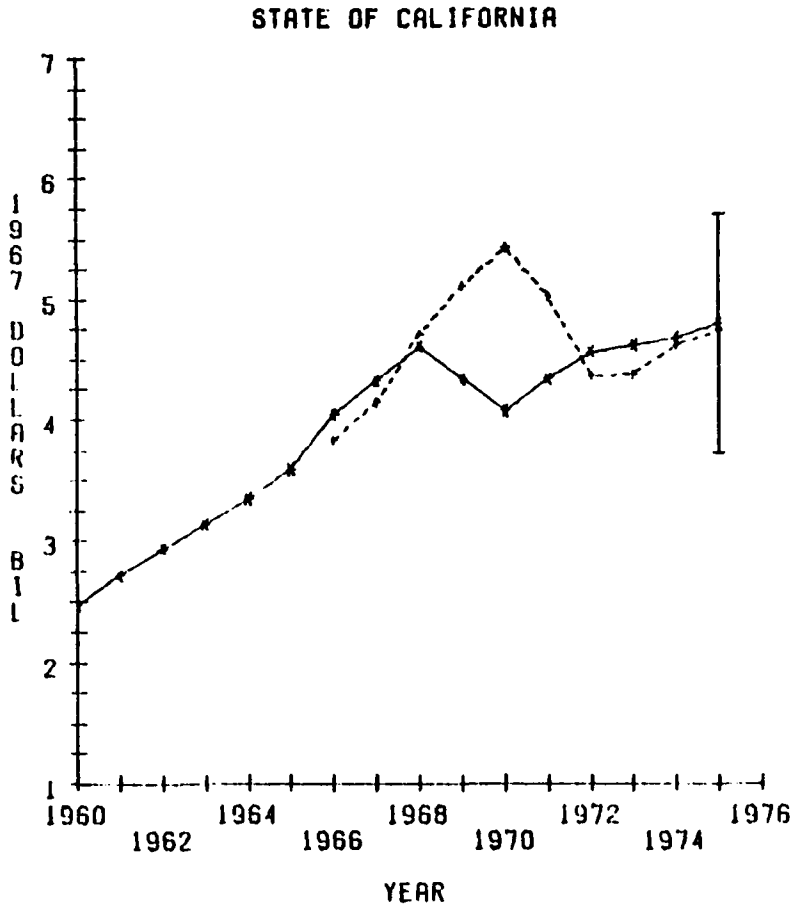
*Not Available: Made linear estimate between 1968 and 1970

Forecast	County	State
Smoothing Type	2	3
Alpha	.666	.318
MAD	7.37	.468
90%± Safety Interval	15.2	.965
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

FINANCIAL TRANSACTIONS FOR SCHOOL DIST--PAYMENTS

* ACTUAL
\+ FORECAST





FINANCIAL TRANSACTIONS CONCERNING SCHOOL DISTRICTS BONDED INDEBTEDNESS

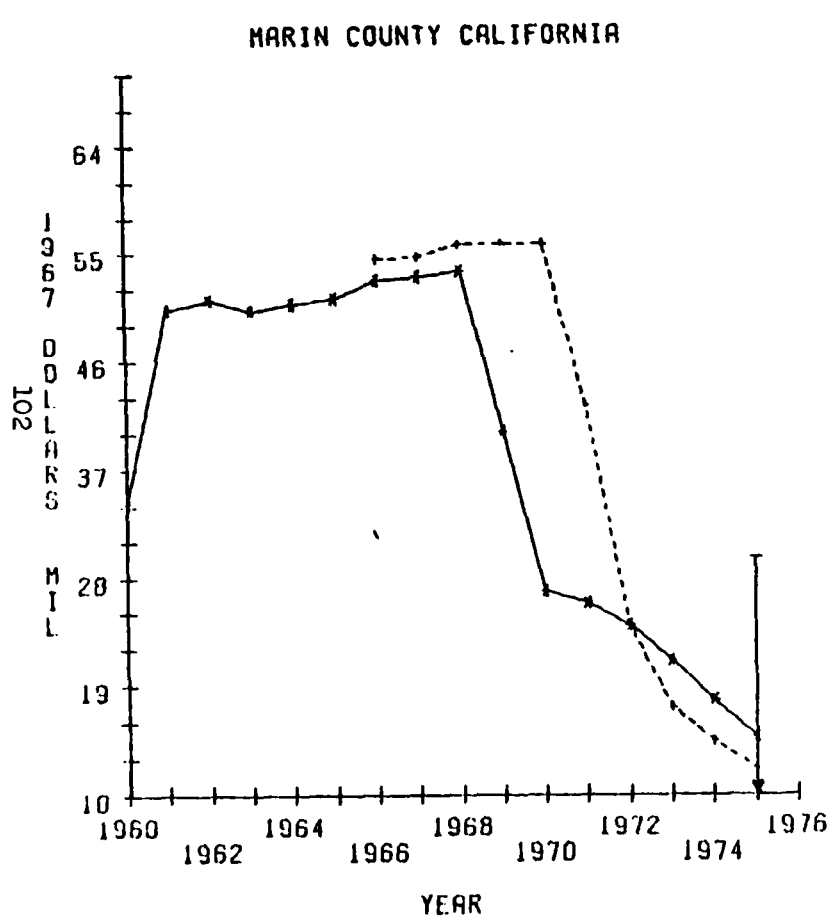
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	34.2		3.37	
1961	50.4		3.81	
1962	51.2		4.29	
1963	50.3		4.38	
1964	50.8		4.74	
1965	51.3		4.86	
1966	52.8	54.6	5.35	5.10
1967	53.1	54.8	5.54	5.30
1968	53.5	55.8	5.91	5.80
1969 *	40.2	55.9	4.28	6.07
1970	26.9	55.9	2.64	6.45
1971	25.9	42.3	2.52	4.74
1972	24.1	24.1	2.38	2.38
1973	21.1	17.3	2.18	1.54
1974	17.9	14.5	1.94	1.31
1975	14.8	12.2	1.72	1.23

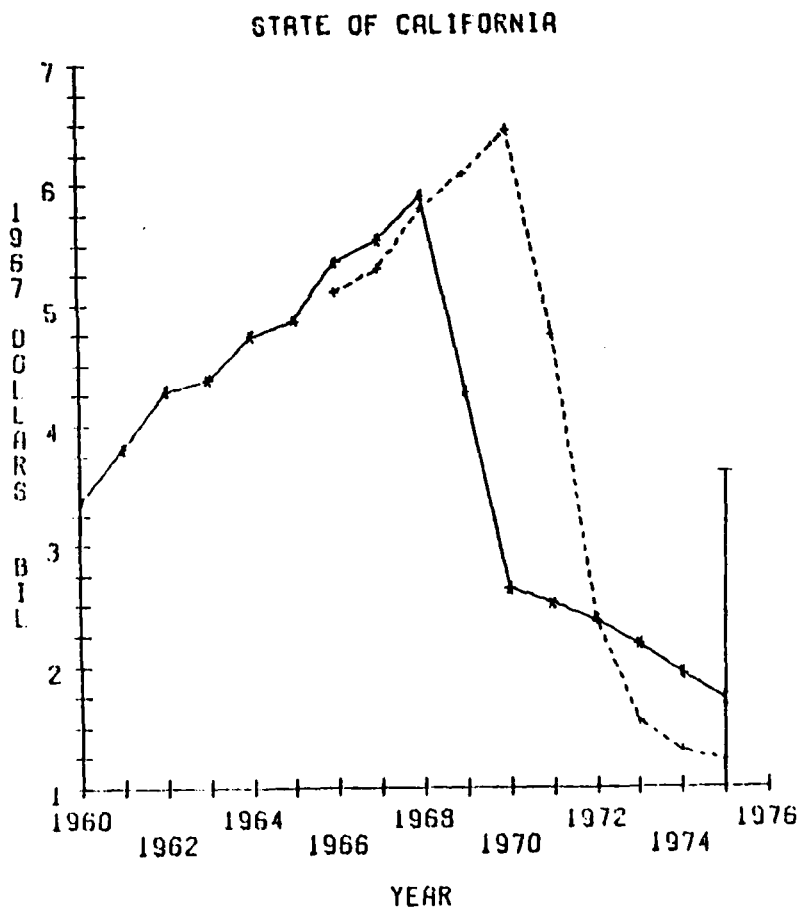
*Not Available: Made linear estimate between 1968 and 1970

Forecast	County	State
Smoothing Type	2	2
Alpha	.410	.435
MAD	8.829	1.134
90%± Safety Interval	18.2	2.34
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

FIN TRANSACTIONS FOR SCHL DIST--BOND INDEBT

* ACTUAL
+ FORECAST





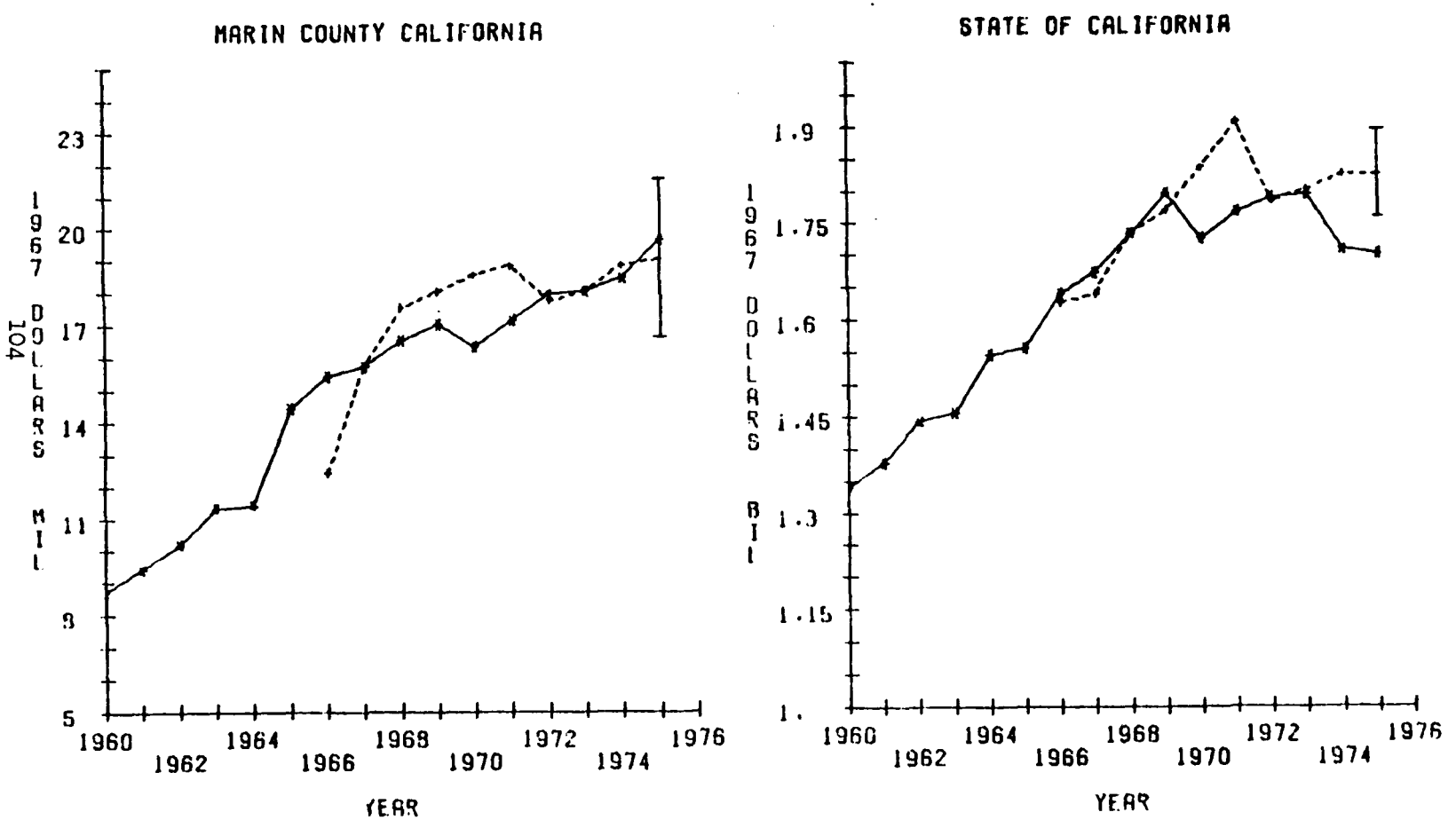
TAXABLE SALES - APPAREL STORES

Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	8.7		1.34	
1961	9.4		1.38	
1962	10.2		1.44	
1963	11.3		1.46	
1964	11.4		1.54	
1965	14.4		1.56	
1966	15.4	12.4	1.64	1.63
1967	15.7	15.7	1.67	1.64
1968	16.5	17.5	1.73	1.73
1969	17	18	1.80	1.77
1970	16.3	18.5	1.72	1.83
1971	17.1	18.8	1.76	1.90
1972	17.9	17.7	1.79	1.78
1973	18	18	1.79	1.80
1974	18.4	18.8	1.70	1.82
1975	19.6	19	1.70	1.82

Forecast	County	State
Smoothing Type	2	2
Alpha	.462	.559
MAD	1.14	.028
90%± Safety Interval	2.35	.058
Decision Scheme		
Inside Safety Interval	X	
Outside Safety Interval		X
Significant Change	No	

TAXABLE SALES -- APPAREL STORES

* ACTUAL
\+ FORECAST



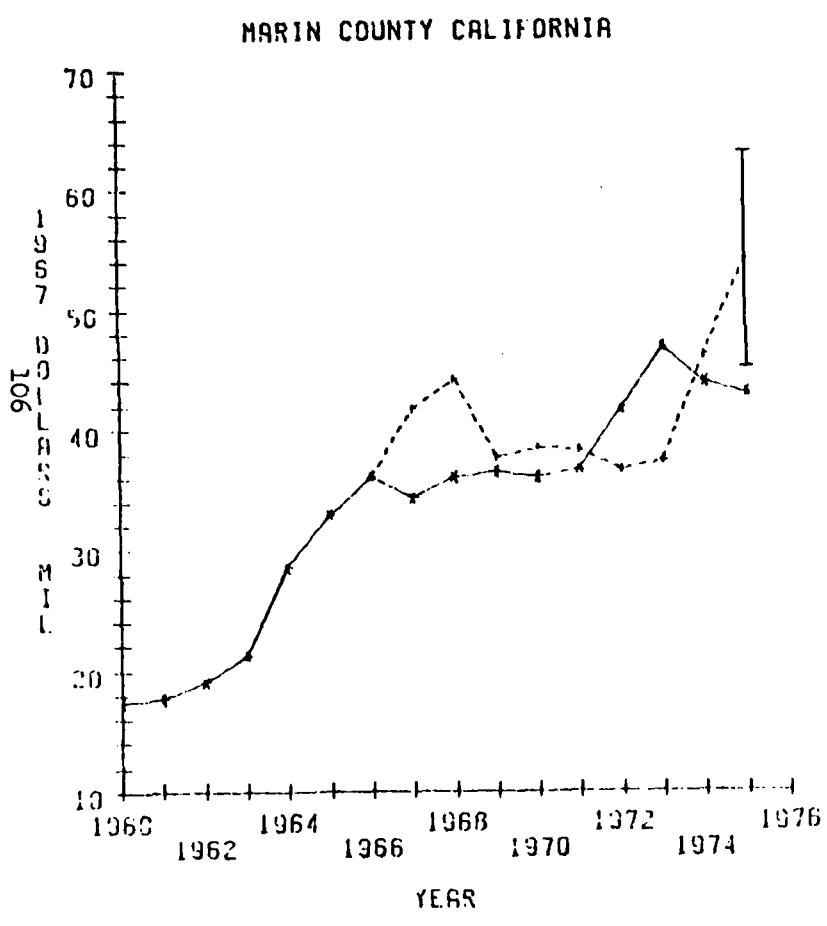
TAXABLE SALES - GENERAL MERCHANDISE STORES

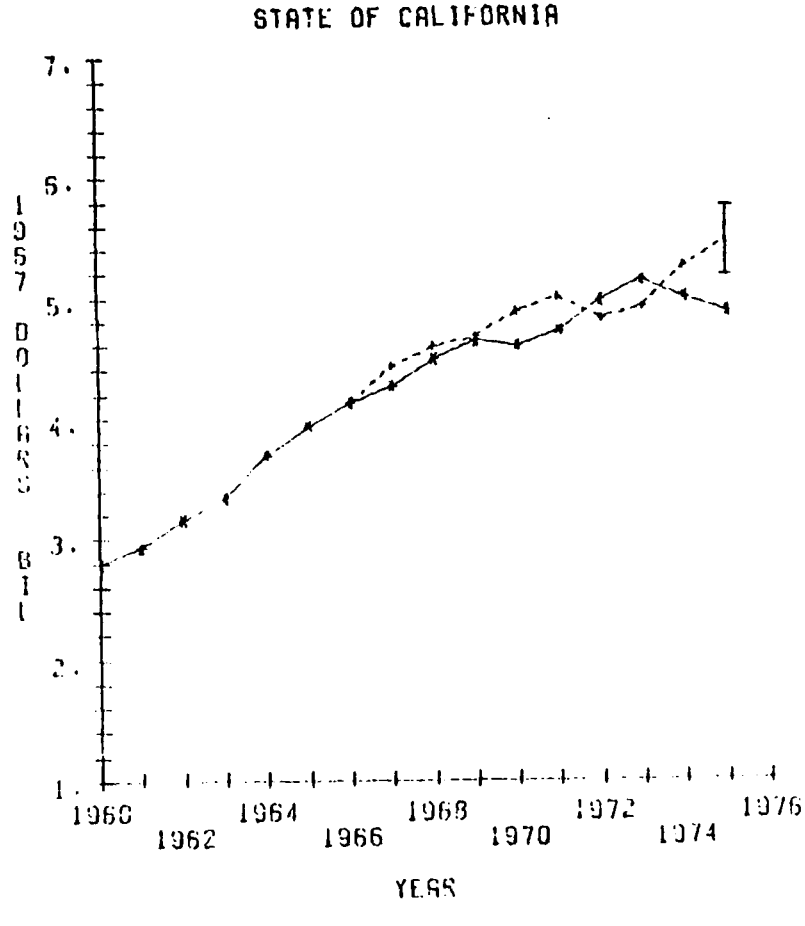
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	17.4		2.80	
1961	17.7		2.93	
1962	19		3.16	
1963	21.2		3.34	
1964	28.5		3.69	
1965	32.8		3.93	
1966	36	36	4.12	4.12
1967	34.2	41.7	4.26	4.42
1968	35.9	44.1	4.48	4.59
1969	36.4	37.6	4.63	4.66
1970	35.9	38.4	4.60	4.88
1971	36.6	38.2	4.71	5
1972	41.6	36.5	4.96	4.82
1973	46.7	37.3	5.13	4.90
1974	43.8	46	4.98	5.24
1975	42.9	54	4.86	5.45

Forecast	County	State
Smoothing Type	2	2
Alpha	.666	.616
MAD	4.4	.155
90%± Safety Interval	9.07	.320
Decision Scheme		
Inside Safety Interval		
Outside Safety Interval	X	X
Significant Change	Not Determinable	

TAXABLE SALES -- GENERAL MERCHANDISE STORES

* ACTUAL
\+ FORECAST





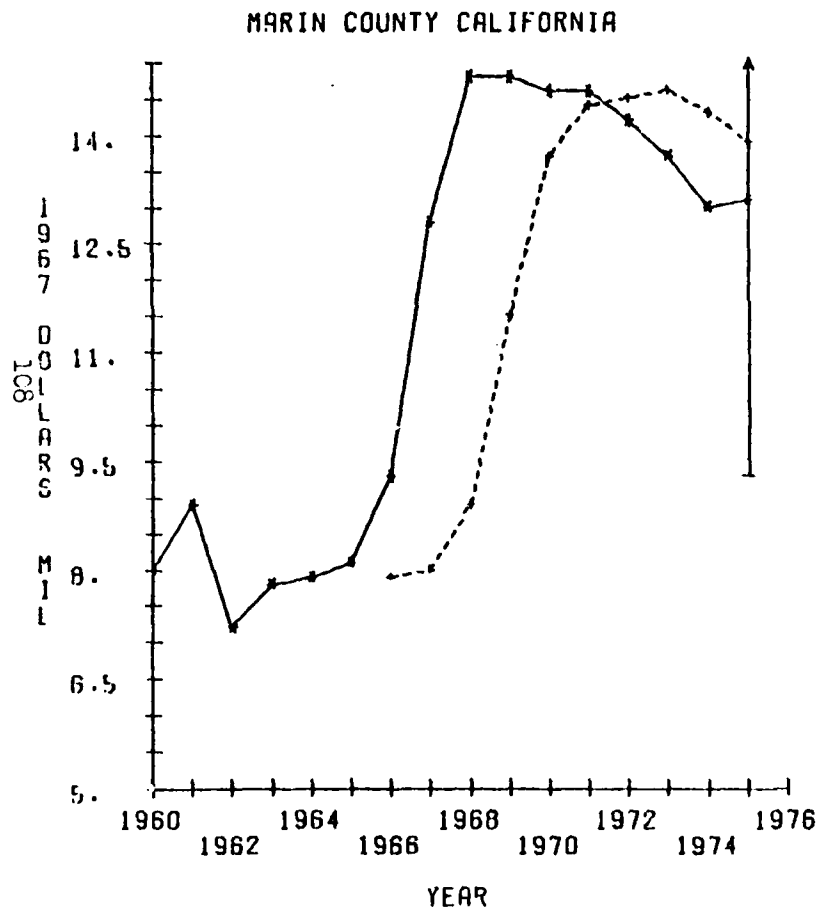
TAXABLE SALES - DRUG STORES

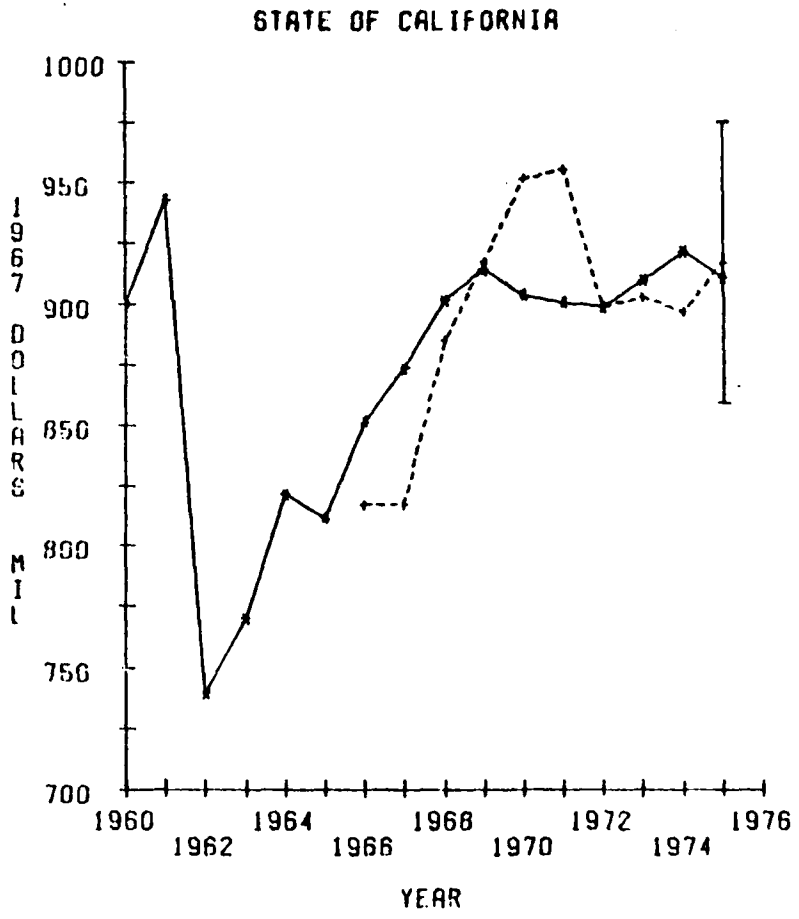
Year	County(MIL)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	8		900	
1961	8.9		943	
1962	7.2		739	
1963	7.8		770	
1964	7.9		821	
1965	8.1		811	
1966	9.3	7.9	851	817
1967	12.8	8	873	817
1968	14.8	8.9	901	885
1969	14.8	11.5	914	917
1970	14.6	13.7	903	951
1971	14.6	14.4	900	955
1972	14.2	14.5	898	918
1973	13.7	14.6	909	902
1974	13	14.3	921	896
1975	13.1	13.9	910	916

Forecast	County	State
Smoothing Type	1	2
Alpha	.66666	.66666
MAD	2.2	30
90%± Safety Interval	4.54	61.9
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

TAXABLE SALES -- DRUG STORES

* ACTUAL
\+ FORECAST





TAXABLE SALES - FOOD STORES

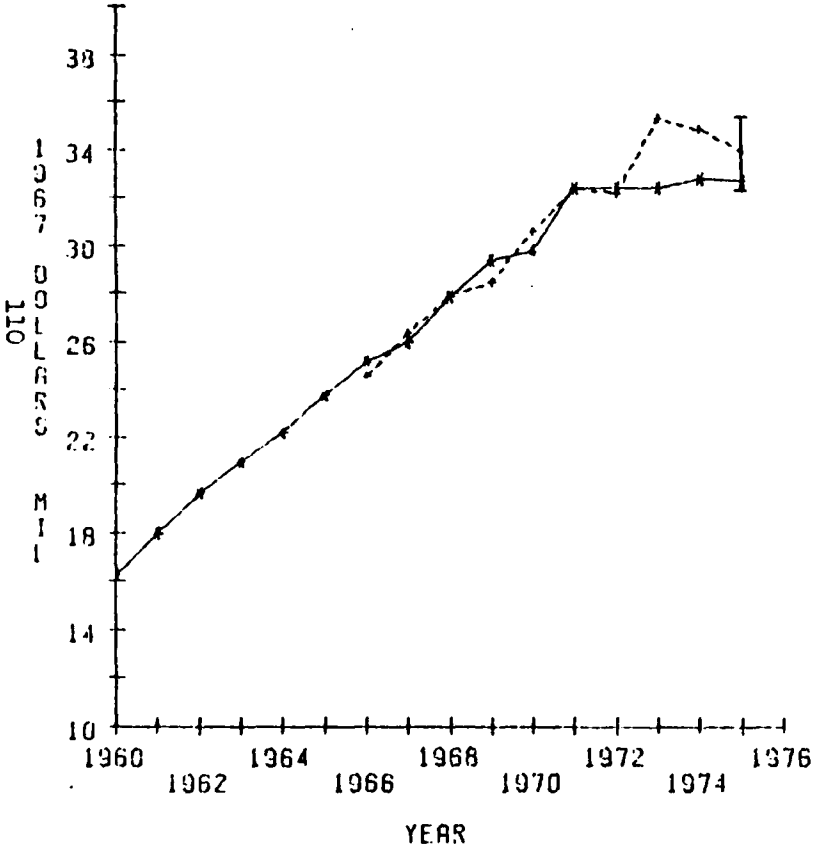
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	16.2		1.51	
1961	17.9		1.58	
1962	19.6		1.56	
1963	20.9		1.77	
1964	22.1		1.86	
1965	23.7		1.97	
1966	25.1	24.5	2.05	2.05
1967	25.9	26.3	2.20	2.18
1968	27.8	27.9	2.38	2.25
1969	29.3	28.4	2.48	2.43
1970	29.7	30.5	2.56	2.67
1971	32.3	32.2	2.64	2.74
1972	32.3	32.1	2.68	2.78
1973	32.3	35.2	2.68	2.84
1974	32.7	34.7	2.84	2.82
1975	32.6	33.8	2.32	2.76

Forecast	County	State
Smoothing Type	2	2
Alpha	.585	.66666
MAD	.75	.08
90%± Safety Interval	1.55	.165
Decision Scheme		
Inside Safety Interval	X	
Outside Safety Interval		X
Significant Change	No	

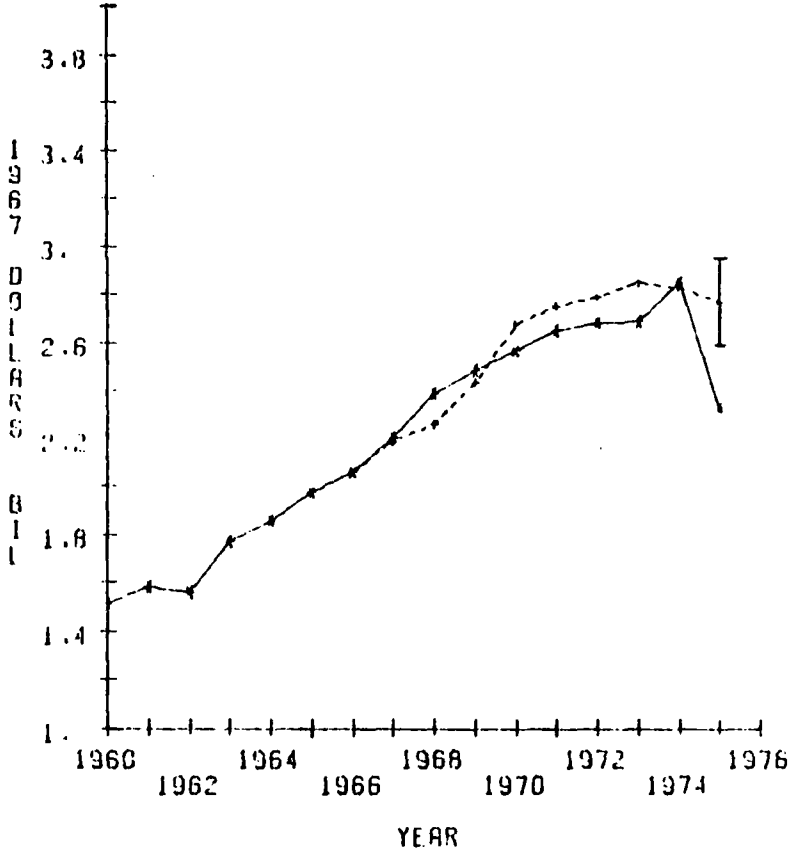
TAXABLE SALES -- FOOD STORES

* ACTUAL
\+ FORECAST

MARIN COUNTY CALIFORNIA



STATE OF CALIFORNIA

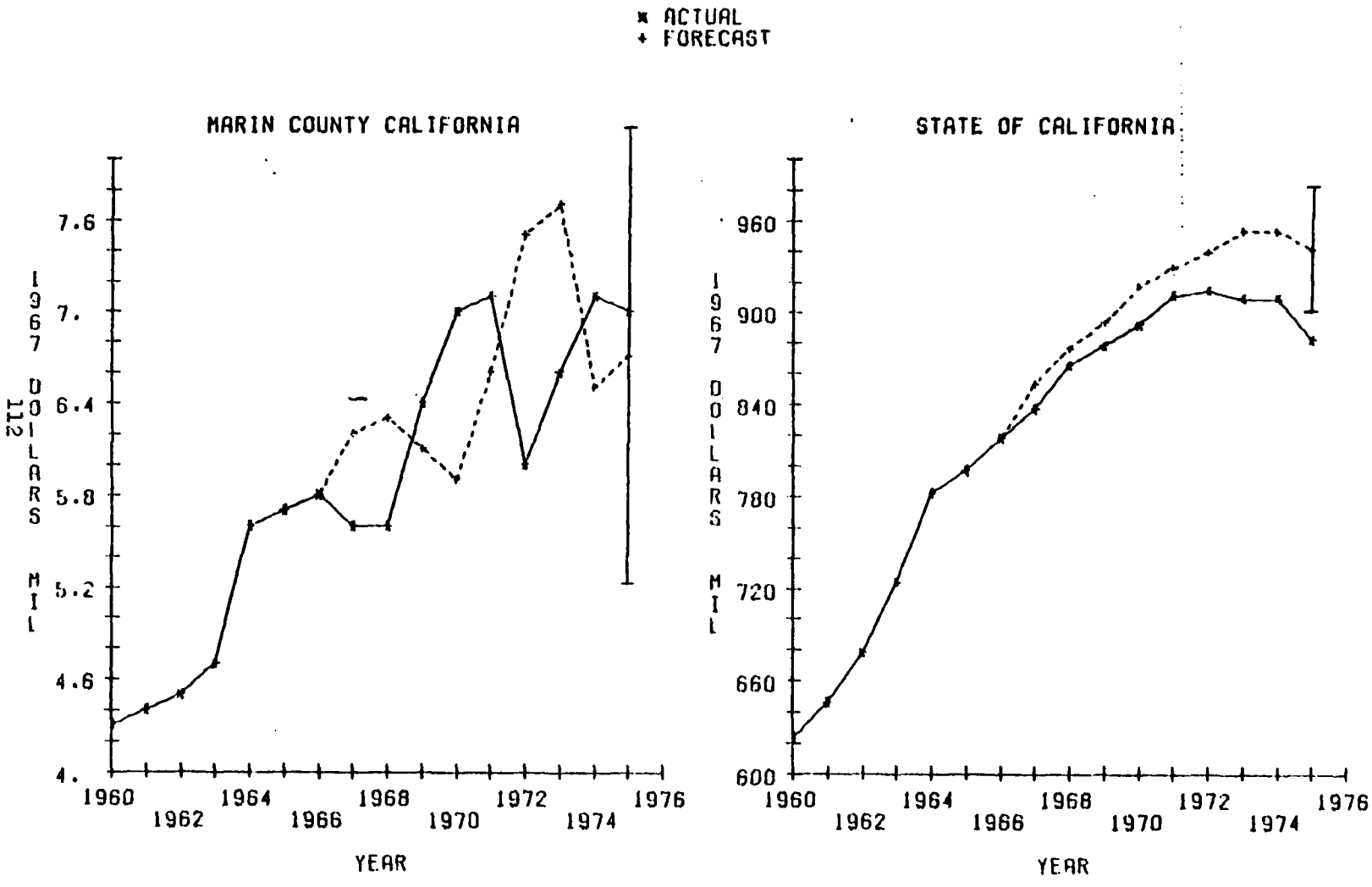


TAXABLE SALES - PACKAGED LIQUOR STORES

Year	County(MIL)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	4.3		623	
1961	4.4		646	
1962	4.5		678	
1963	4.7		724	
1964	5.6		782	
1965	5.7		797	
1966	5.8	5.8	818	818
1967	5.6	6.2	837	853
1968	5.6	6.3	865	876
1969	6.4	6.1	878	893
1970	7	5.9	892	917
1971	7.1	6.6	911	929
1972	6	7.5	914	939
1973	6.6	7.7	909	953
1974	7.1	6.5	909	953
1975	7	6.7	882	941

Forecast	County	State
Smoothing Type	2	2
Alpha	.436	.421
MAD	.7	19
90%± Safety Interval	1.44	39.2
Decision Scheme		
Inside Safety Interval	X	
Outside Safety Interval		X
Significant Change	No	

TAXABLE SALES -- PACKAGED LIQUOR STORES



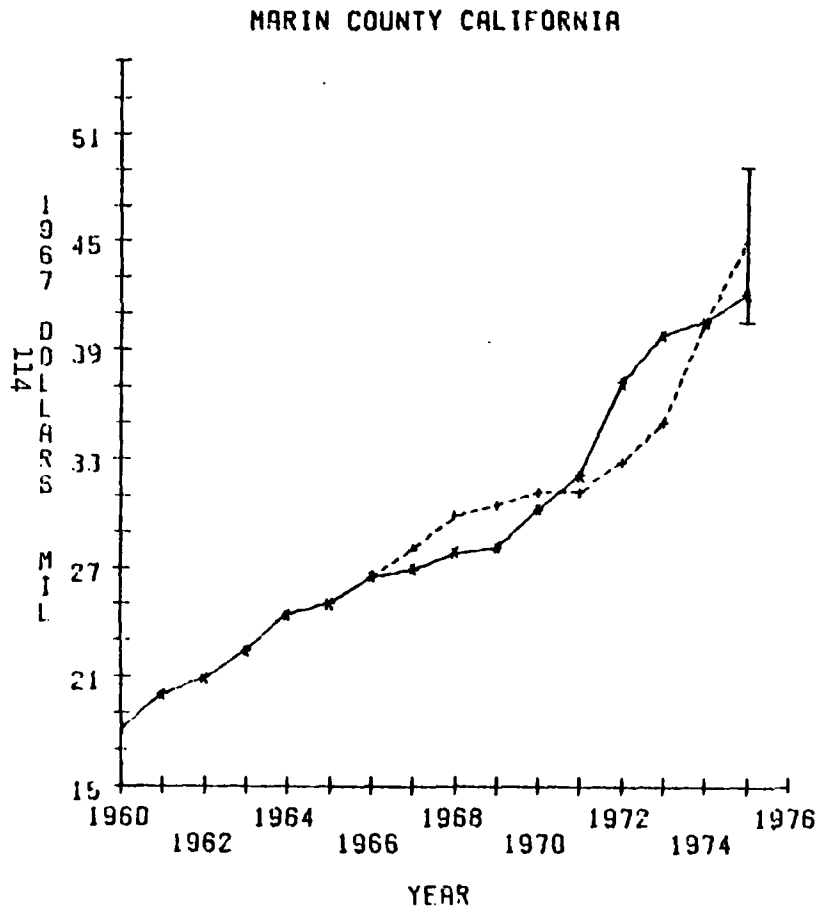
TAXABLE SALES - EATING AND DRINKING PLACES

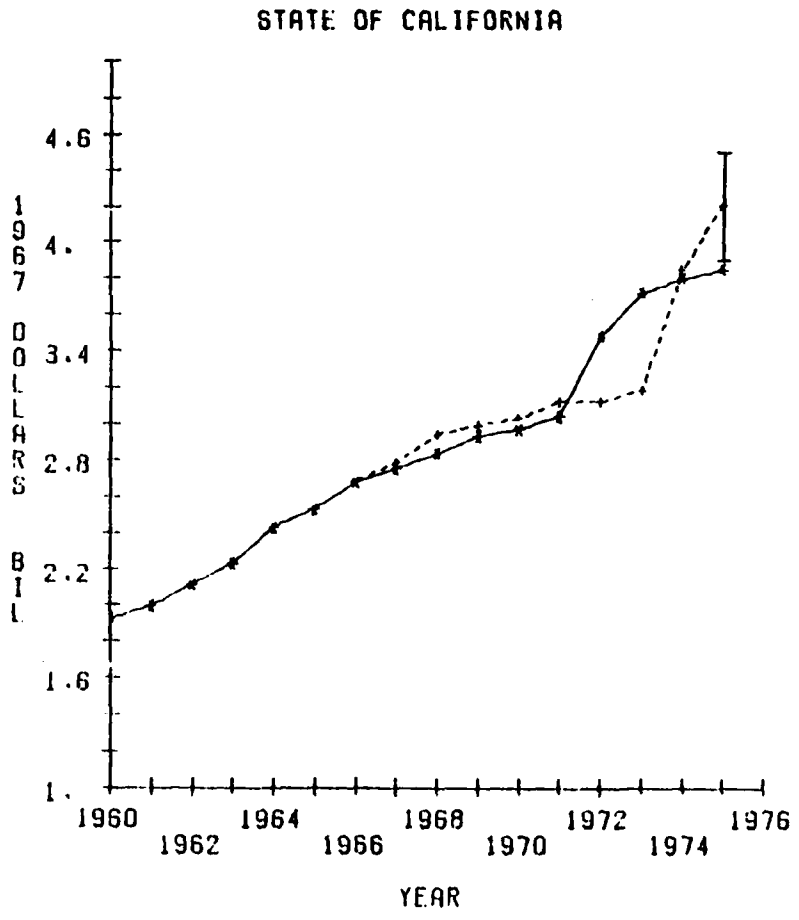
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	18.1		1.93	
1961	20		2	
1962	20.9		2.11	
1963	22.4		2.22	
1964	24.4		2.42	
1965	25		2.52	
1966	26.5	26.5	2.67	2.67
1967	26.9	28	2.75	2.78
1968	27.8	29.8	2.83	2.94
1969	28.1	30.4	2.93	2.99
1970	30.2	31.1	2.97	3.03
1971	32.1	31.1	3.04	3.12
1972	37.2	32.7	3.48	3.12
1973	39.8	34.9	3.72	3.18
1974	40.5	40.3	3.80	3.85
1975	42	44.8	3.85	4.19

Forecast	County	State
Smoothing Type	3	2
Alpha	.261	.624
MAD	2.09	.15
90%± Safety Interval	4.31	.309
Decision Scheme		
Inside Safety Interval	X	
Outside Safety Interval		X
Significant Change	No	

TAXABLE SALES -- EATING + DRINKING PLACES

* ACTUAL
\+ FORECAST





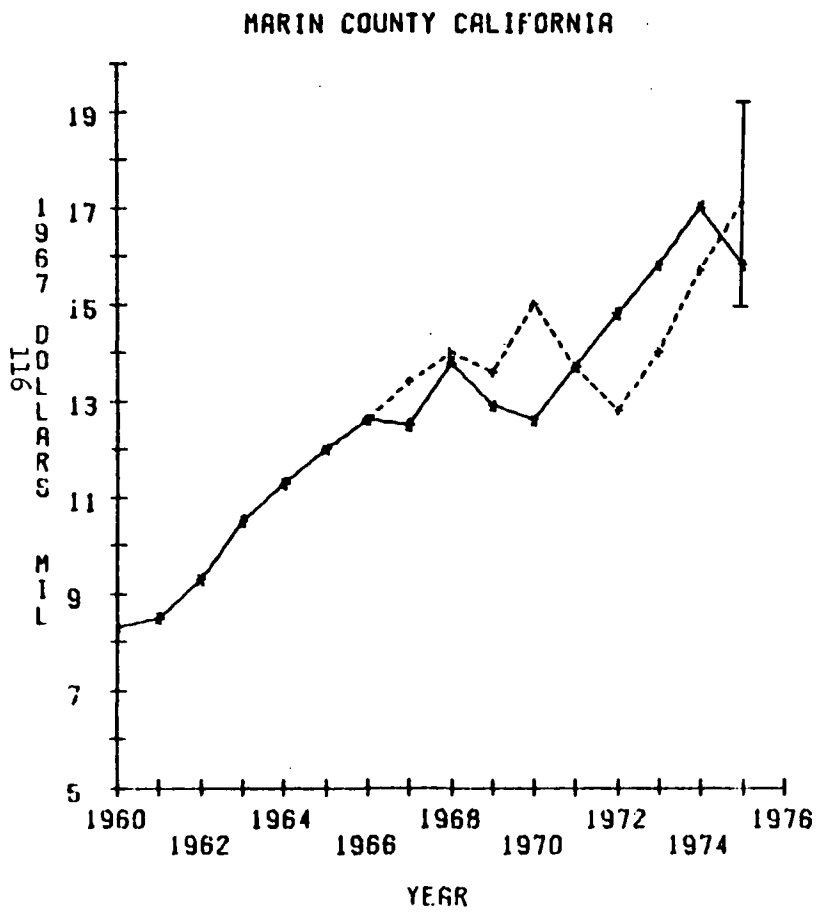
TAXABLE SALES - HOME FURNISHINGS AND APPLIANCES

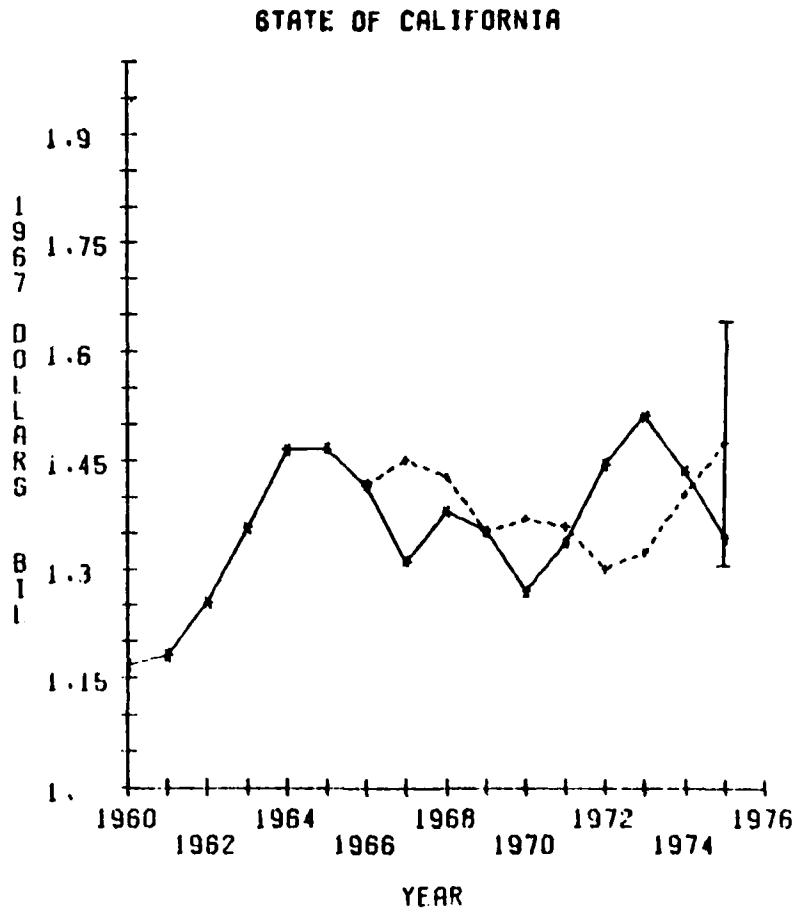
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	8.3		1.17	
1961	8.5		1.18	
1962	9.3		1.25	
1963	10.5		1.36	
1964	11.3		1.46	
1965	12		1.47	
1966	12.6	12.6	1.41	1.41
1967	12.5	13.4	1.31	1.45
1968	13.8	14	1.38	1.43
1969	12.9	13.6	1.35	1.35
1970	12.6	15	1.27	1.37
1971	13.7	13.7	1.33	1.36
1972	14.8	12.8	1.44	1.30
1973	15.8	14	1.51	1.32
1974	17	15.7	1.43	1.40
1975	15.8	17.1	1.34	1.47

Forecast	County	State
Smoothing Type	2	1
Alpha	.527	.66666
MAD	1	.08
90%± Safety Interval	2.06	.165
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

TAXABLE SALES -- HOME FURNISHING + APPLIANCES

* ACTUAL
\+ FORECAST





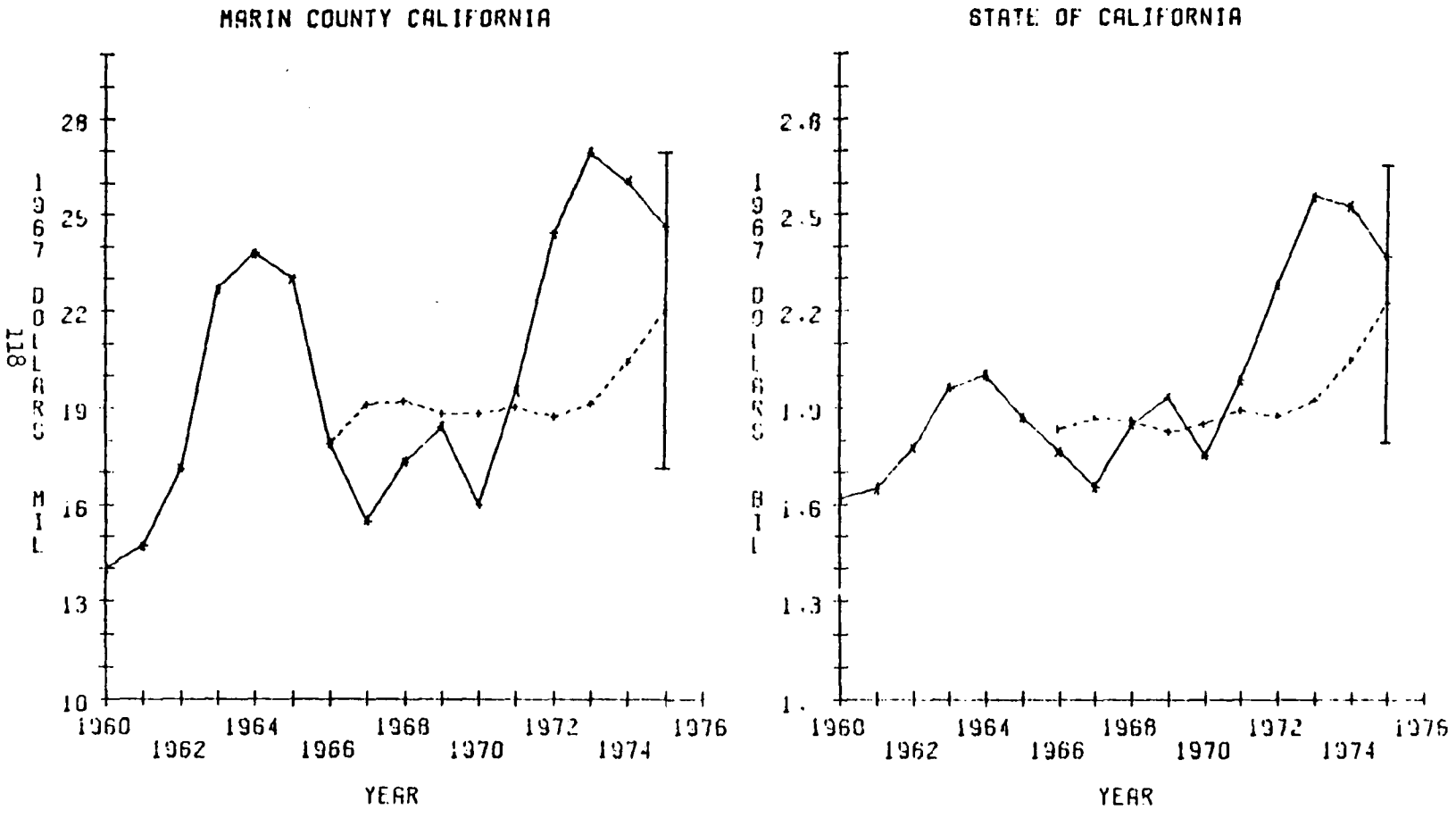
TAXABLE SALES - BUILDING MATERIAL AND FARM IMPLEMENTS

Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	14		1.62	
1961	14.7		1.65	
1962	17.1		1.77	
1963	22.7		1.96	
1964	23.8		2	
1965	23		1.87	
1966	17.9	17.9	1.76	1.84
1967	15.5	19.1	1.65	1.87
1968	17.3	19.2	1.85	1.86
1969	18.4	18.8	1.93	1.82
1970	16	18.8	1.75	1.85
1971	19.5	19	1.98	1.89
1972	24.4	18.7	2.28	1.87
1973	26.9	19.1	2.55	1.92
1974	26	20.4	2.52	2.04
1975	24.6	22	2.36	2.22

Forecast	County	State
Smoothing Type	3	3
Alpha	.061	.086
MAD	2.85	.205
90%± Safety Interval	5.88	.423
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

TAXABLE SALES -- BLDG MATERIAL + FARM IMPLEMENTS

* ACTUAL
\+ FORECAST



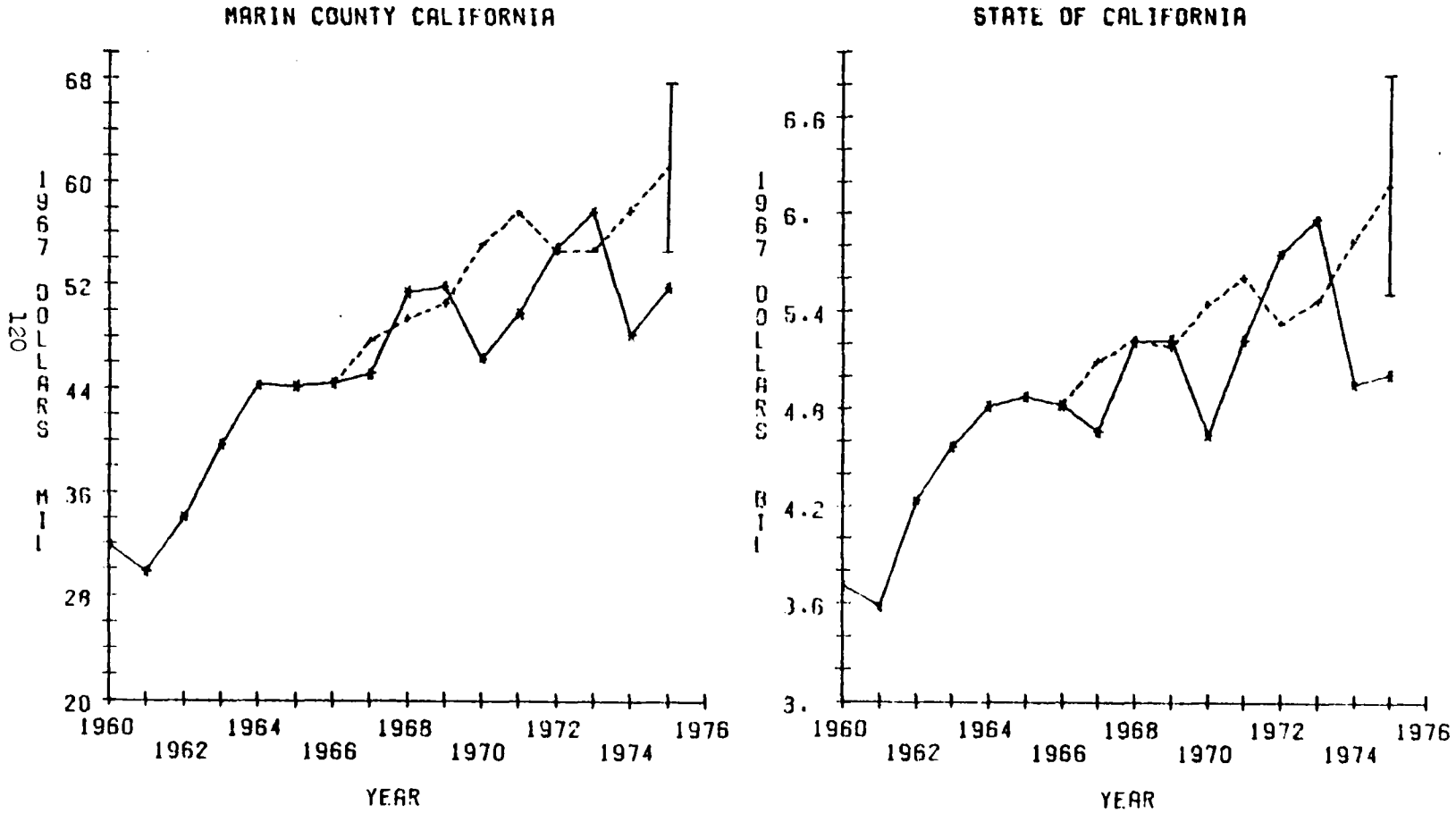
TAXABLE SALES - AUTO DEALERS AND
AUTO SUPPLIES

Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	31.8		3.70	
1961	29.8		3.58	
1962	34		4.23	
1963	39.6		4.56	
1964	44.2		4.81	
1965	44.1		4.87	
1966	44.4	44.4	4.82	4.82
1967	45.1	47.7	4.66	5.10
1968	51.4	49.4	5.21	5.22
1969	51.8	50.5	5.22	5.18
1970	46.3	55	4.63	5.44
1971	49.8	57.5	5.22	5.60
1972	54.8	54.5	5.75	5.32
1973	57.6	54.6	5.96	5.46
1974	48.1	57.7	4.94	5.83
1975	51.8	61	5.01	6.17

Forecast	County	State
Smoothing Type	3	3
Alpha	.195	.167
MAD	3.2	.326
90% Safety Interval	6.60	.672
Decision Scheme		
Inside Safety Interval		
Outside Safety Interval	X	X
Significant Change	Not Determinable	

TAXABLE SALES -- AUTO DEALERS + AUTO SUPPLIES

* ACTUAL
\+ FORECAST



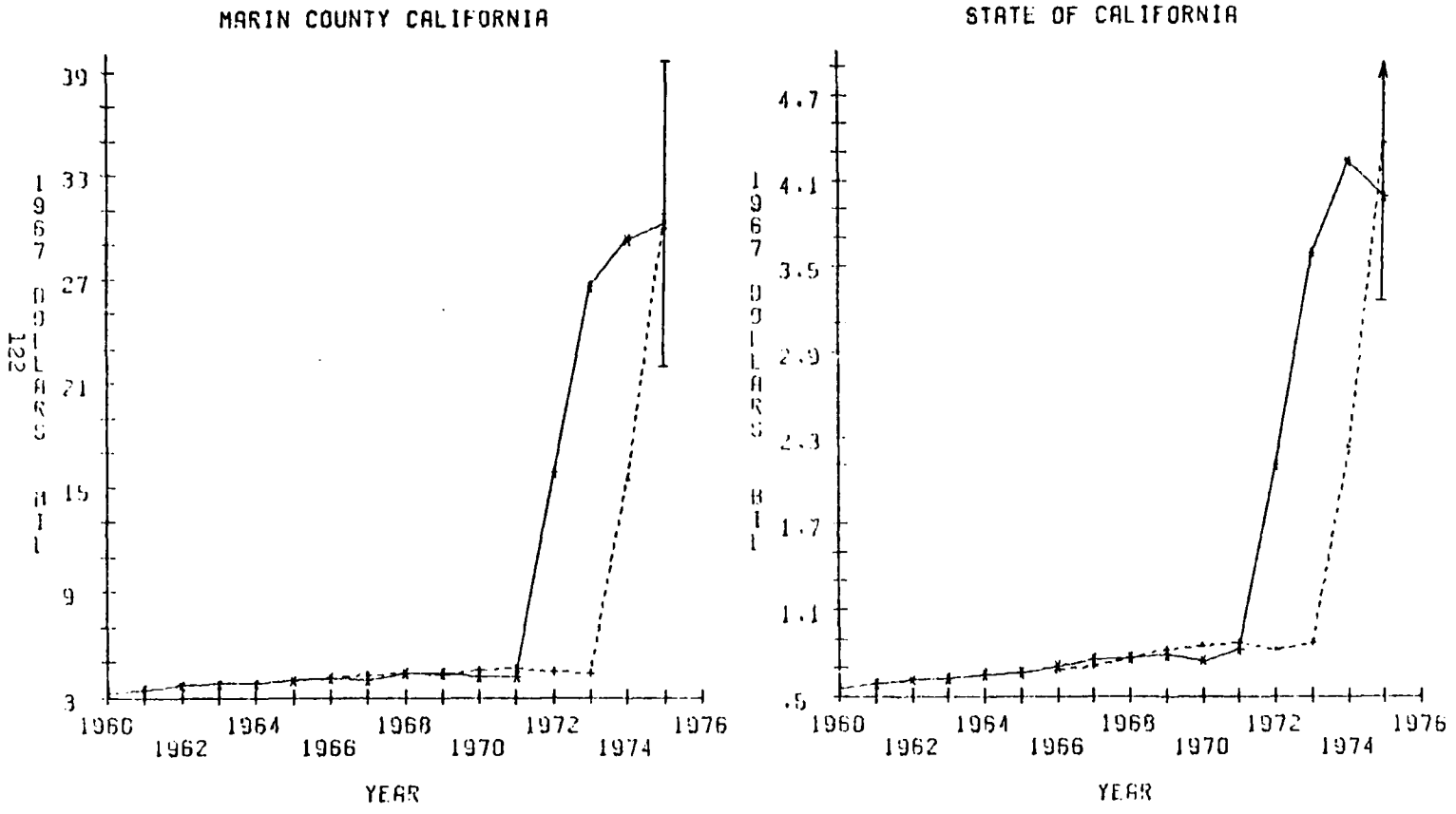
TAXABLE SALES - SERVICE STATIONS

Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	3.3		.557	
1961	3.5		.588	
1962	3.7		.608	
1963	3.8		.622	
1964	3.8		.645	
1965	4		.660	
1966	4.1	4.1	.704	.682
1967	4	4.3	.752	.706
1968	4.4	4.4	.762	.755
1969	4.4	4.3	.781	.818
1970	4.2	4.6	.743	.843
1971	4.2	4.7	.818	.860
1972	15.8	4.5	2.093	.812
1973	26.5	4.39	3.578	.859
1974	29.2	15.4	4.215	2.223
1975	30.1	30.7	3.967	4.341

Forecast	County	State
Smoothing Type	3	3
Alpha	.255	.277
MAD	4.3	.532
90%± Safety Interval	8.87	1.10
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

TAXABLE SALES -- SERVICE STATIONS

* ACTUAL
\+ FORECAST



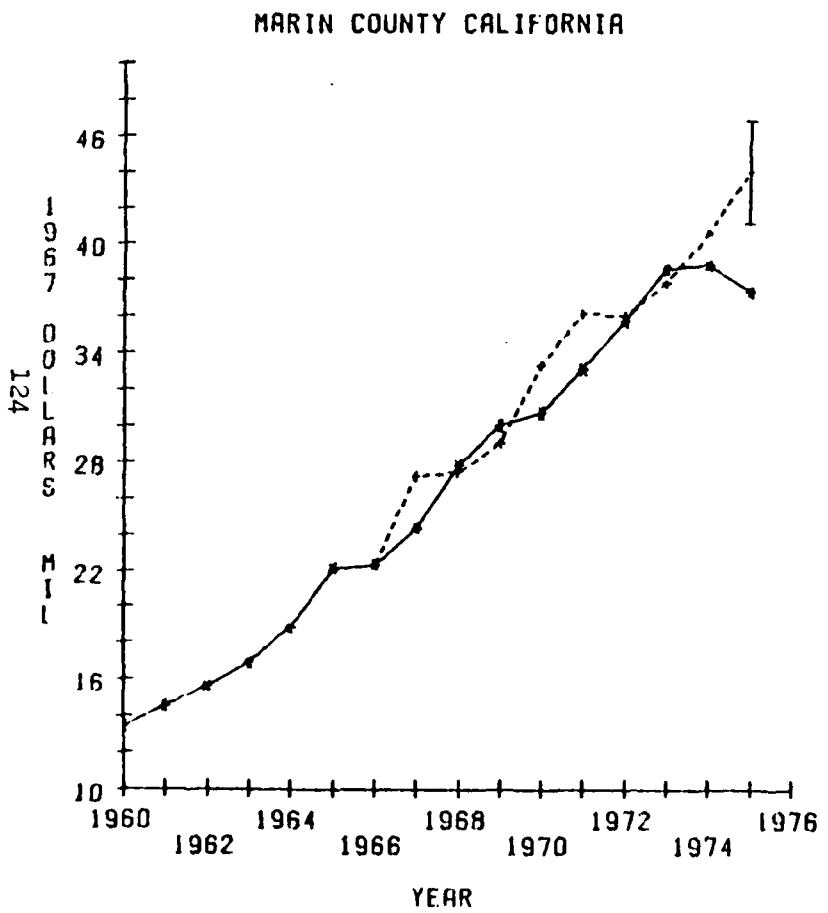
TAXABLE SALES - OTHER RETAIL STORES

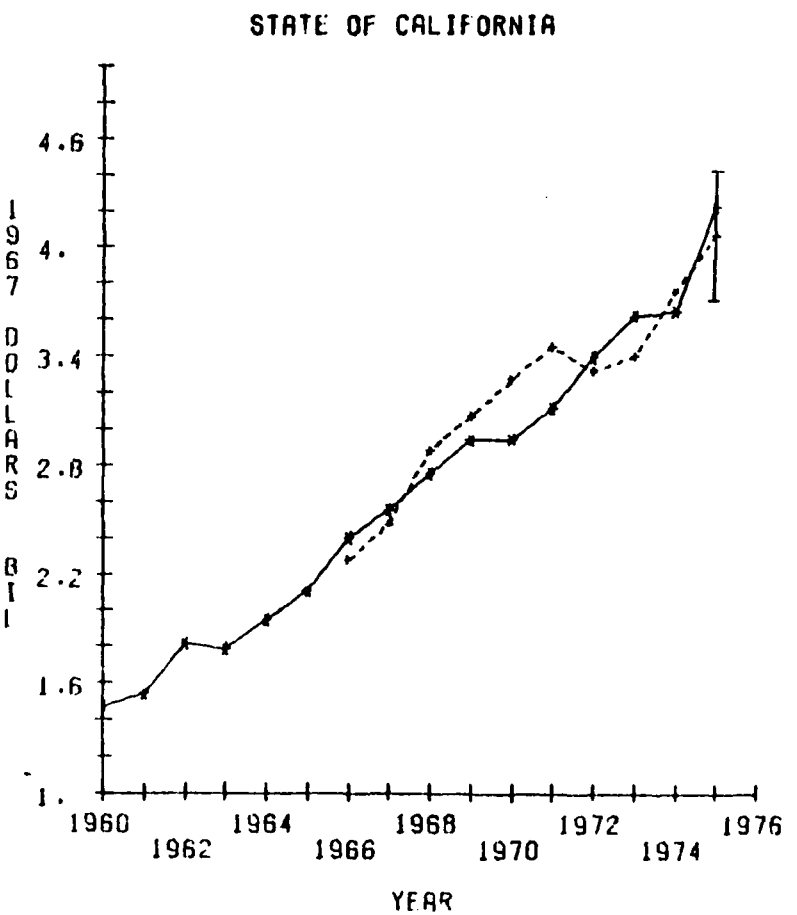
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	13.4		1.47	
1961	14.5		1.54	
1962	15.6		1.81	
1963	16.9		1.79	
1964	18.8		1.94	
1965	22.1		2.10	
1966	22.3	22.3	2.40	2.28
1967	24.3	27.2	2.55	2.47
1968	27.8	27.4	2.75	2.88
1969	30	29	2.94	3.07
1970	30.7	33.3	2.94	3.27
1971	33.1	36.1	3.11	3.44
1972	35.7	36	3.39	3.31
1973	38.6	37.8	3.62	3.40
1974	38.8	40.6	3.64	3.75
1975	37.3	44	4.22	4.06

Forecast	County	State
Smoothing Type	3	3
Alpha	.369	.389
MAD	1.4	.178
90%± Safety Interval	2.89	.367
Decision Scheme		
Inside Safety Interval		X
Outside Safety Interval	X	
Significant Change	Yes	

TAXABLE SALES -- OTHER RETAIL STORES

* ACTUAL
\+ FORECAST





TAXABLE SALES - RETAIL STORES TOTALS

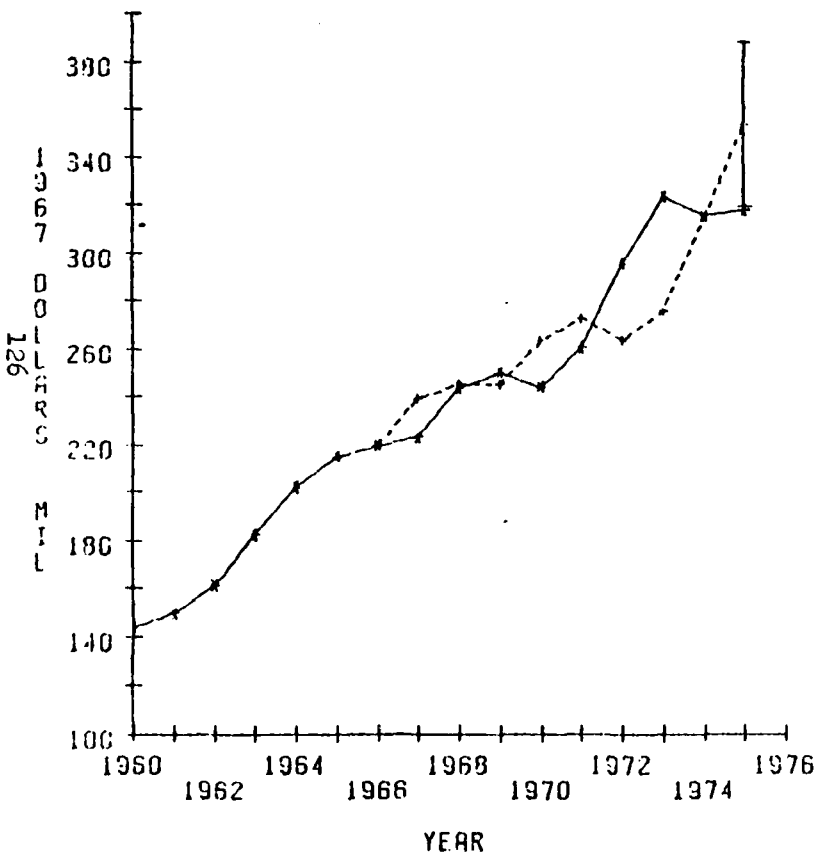
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	144		17.6	
1961	149		18	
1962	161		19.4	
1963	182		20.6	
1964	202		22	
1965	215		22.6	
1966	219	219	23.3	23.3
1967	222	239	23.5	24.6
1968	243	245	25.1	25.6
1969	250	245	25.8	26
1970	244	263	25	27.3
1971	260	272	26.4	28.3
1972	295	263	29.7	27.6
1973	323	275	32.3	28.2
1974	314	314	31.9	31.2
1975	317	353	31.4	34.8

Forecast	County	State
Smoothing Type	2	3
Alpha	.454	.246
MAD	16.7	1.503
90% Safety Interval	34.4	3.10
Decision Scheme		
Inside Safety Interval		
Outside Safety Interval	X	X
Significant Change	Not Determinable	

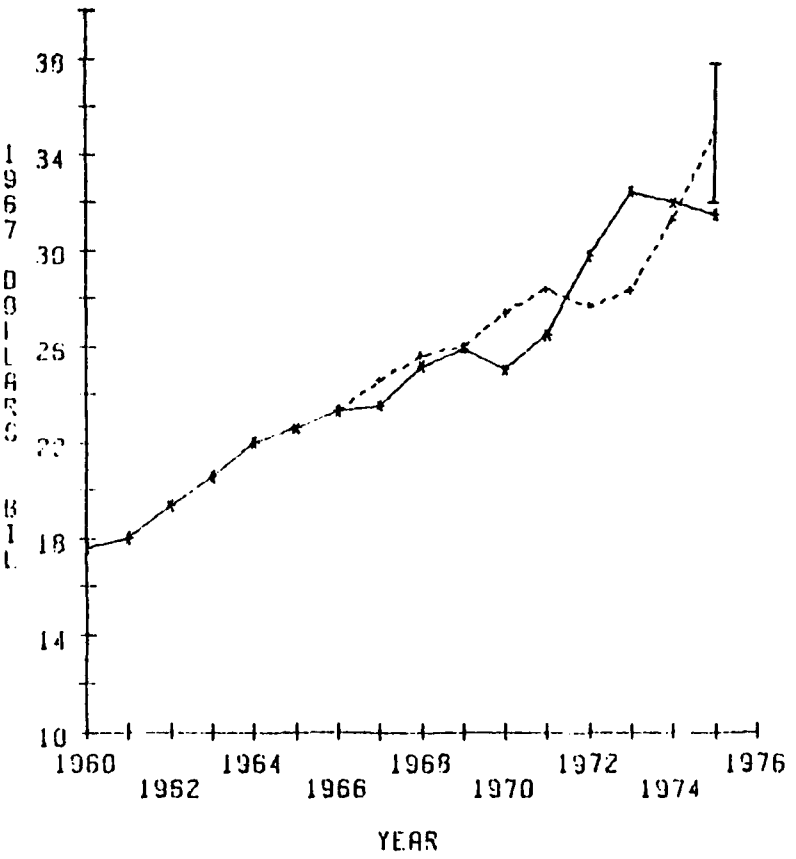
TAXABLE SALES -- RETAIL STORES TOTAL

* ACTUAL
\+ FORECAST

MARIN COUNTY CALIFORNIA



STATE OF CALIFORNIA



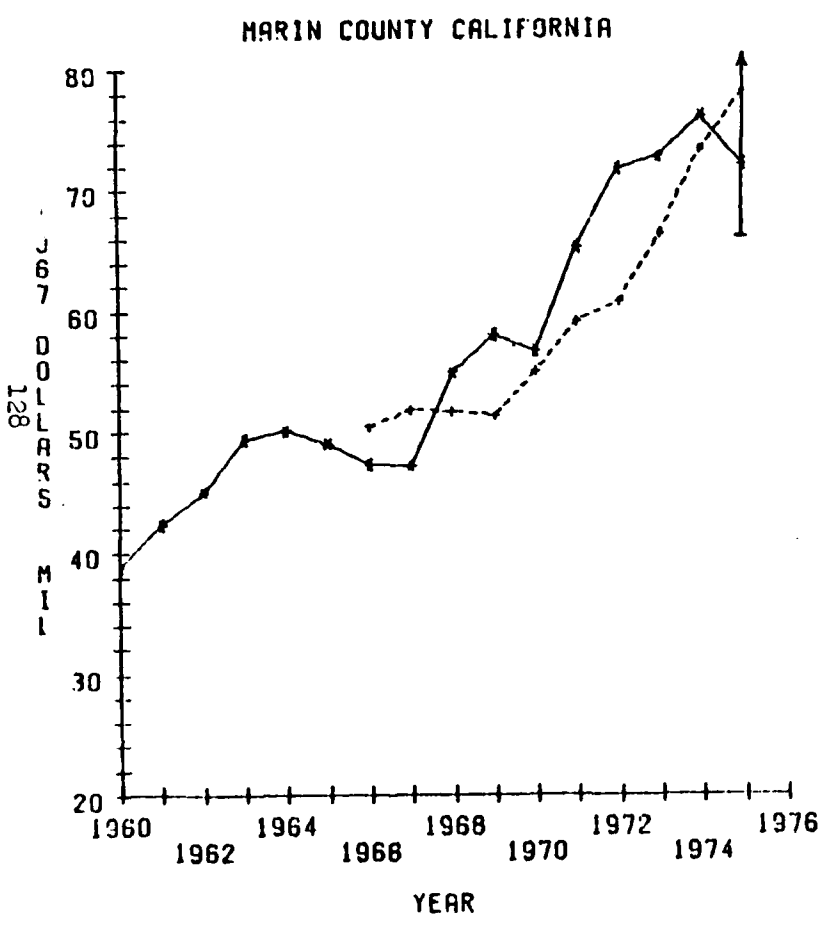
TAXABLE SALES - ALL OTHER OUTLETS

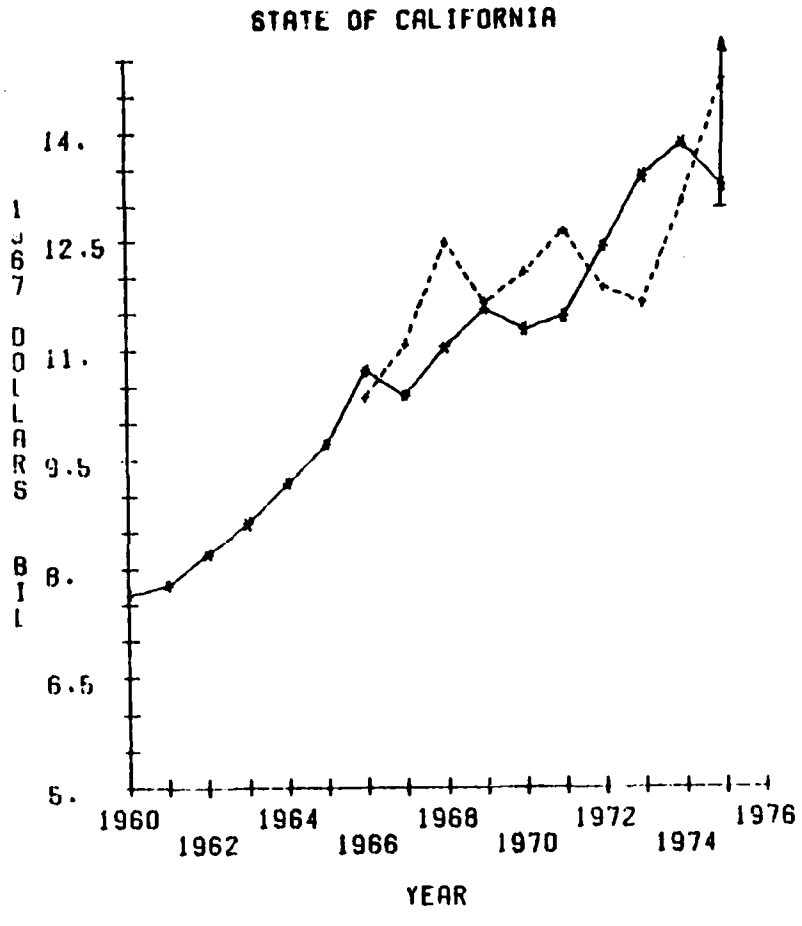
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	38.8		7.65	
1961	42.3		7.77	
1962	45.1		8.20	
1963	49.4		8.62	
1964	50.1		9.18	
1965	49		9.71	
1966	47.3	50.4	10.72	10.35
1967	47.2	51.8	10.39	11.07
1968	54.9	51.7	11.04	12.48
1969	58	51.3	11.57	11.67
1970	56.6	55	11.28	12.07
1971	65.2	59	11.45	12.63
1972	71.7	60.7	12.42	11.85
1973	72.7	66.3	13.37	11.64
1974	76	73.2	13.81	13.04
1975	72	78	13.24	14.69

Forecast	County	State
Smoothing Type	3	3
Alpha	.157	.400
MAD	5.3	.86
90%± Safety Interval	10.9	1.77
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

TAXABLE SALES -- ALL OTHER OUTLETS

* ACTUAL
\+ FORECAST





TAXABLE SALES - TOTALS ALL OUTLETS

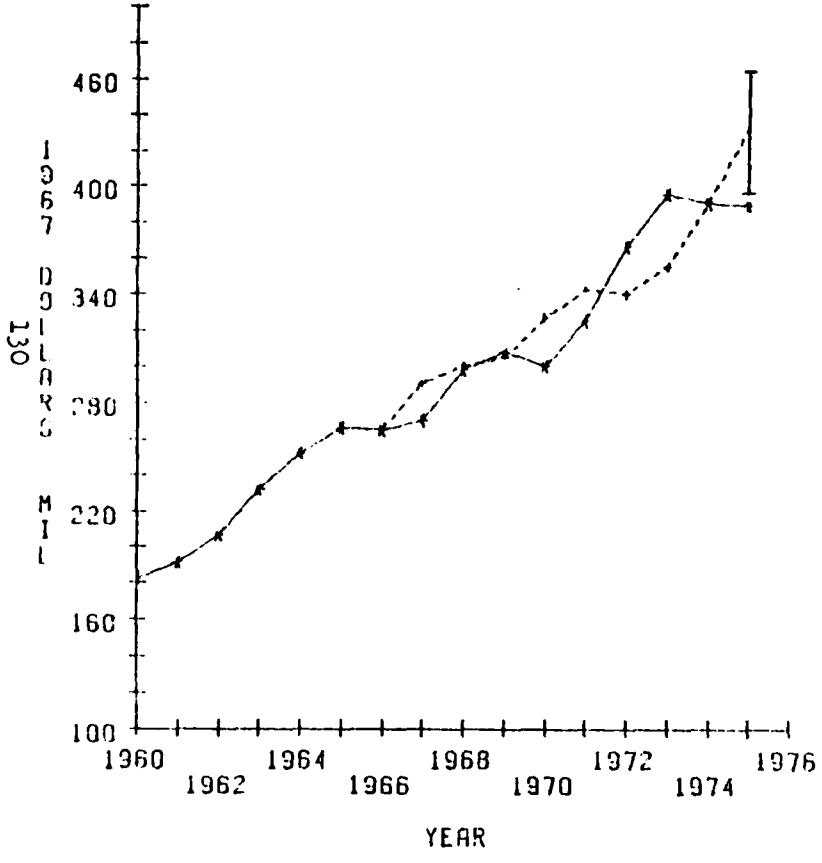
Year	County(MIL)		State(BIL)	
	Actual	Forecast	Actual	Forecast
1960	182		26.3	
1961	192		26.9	
1962	206		28.7	
1963	231		30.4	
1964	252		32.4	
1965	266		33.4	
1966	265	265	35.3	35.3
1967	270	290	35.1	37.2
1968	298	300	37.5	39.3
1969	308	306	38.8	39.2
1970	300	327	37.6	41
1971	325	343	39.3	42.5
1972	366	340	43.6	40.9
1973	395	355	47.4	41.5
1974	391	392	47.4	46.2
1975	389	431	46.4	51.8

Forecast	County	State
Smoothing Type	3	3
Alpha	.221	.300
MAD	17	2.46
90%± Safety Interval	35.1	5.07
Decision Scheme		
Inside Safety Interval		
Outside Safety Interval	X	X
Significant Change	Not Determinable	

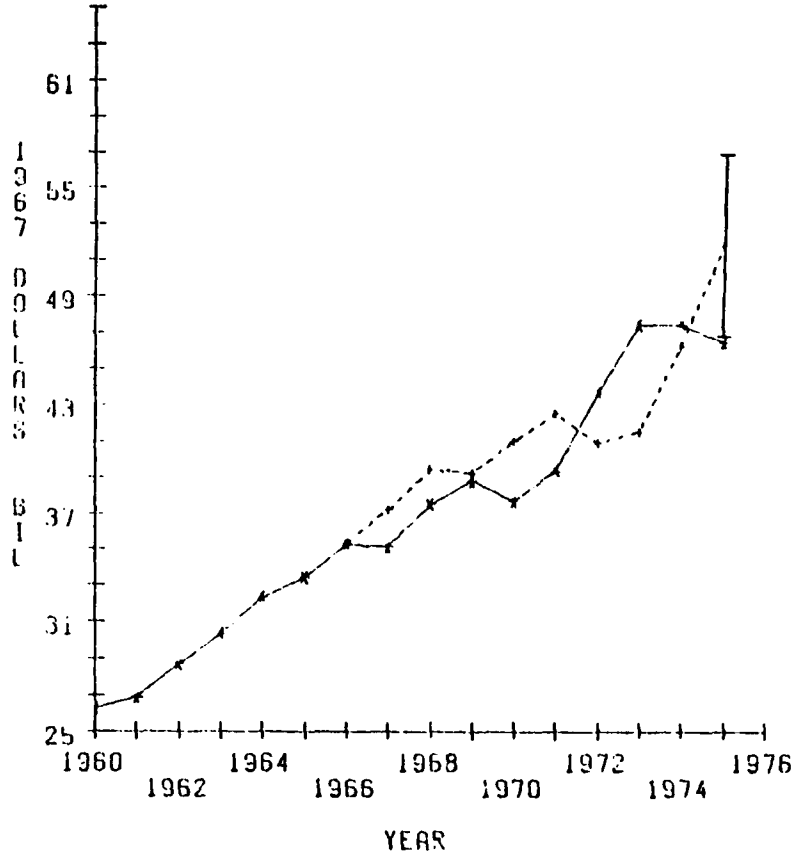
TAXABLE SALES -- TOTALS ALL OUTLETS

* ACTUAL
\+ FORECAST

MARIN COUNTY CALIFORNIA



STATE OF CALIFORNIA



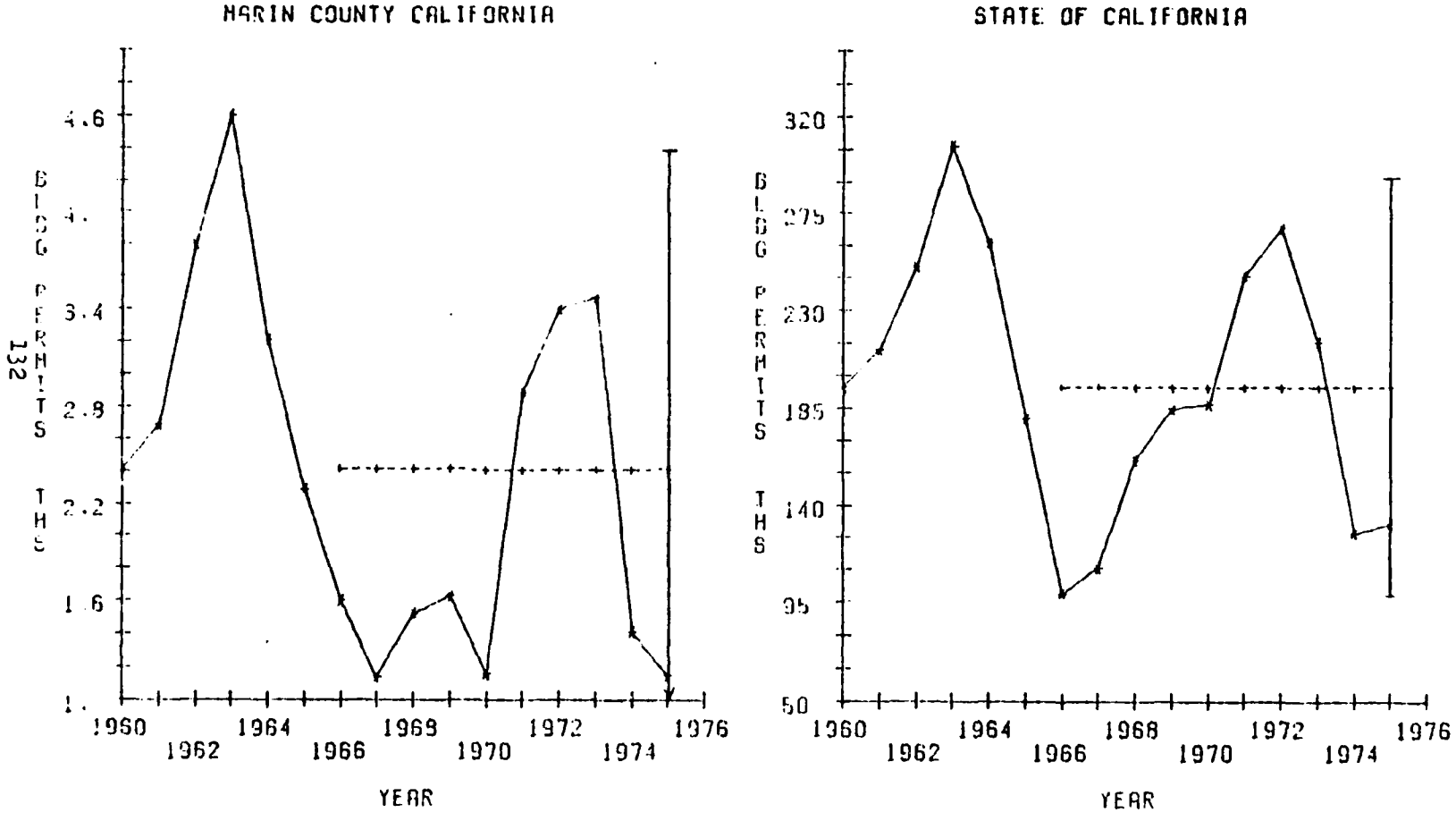
NUMBER OF NEW HOUSING UNITS AUTHORIZED
BY BUILDING PERMITS

Year	County(THS)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	2.41		195	
1961	2.69		212	
1962	3.80		250	
1963	4.60		306	
1964	3.21		262	
1965	2.29		180	
1966	1.60	2.42	99	195
1967	1.14	2.42	111	195
1968	1.53	2.42	161	195
1969	1.63	2.42	185	195
1970	1.16	2.41	187	195
1971	2.89	2.41	246	195
1972	3.40	2.41	268	195
1973	3.47	2.41	216	195
1974	1.41	2.41	127	195
1975	1.15	2.42	132	195

Forecast	County	State
Smoothing Type	2	1
Alpha	.001	.001
MAD	.96	47.2
90%± Safety Interval	1.98	97.3
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

NUMBER OF NEW HOUSING UNITS AUTH BY BLDG PERMITS

* ACTUAL
\+ FORECAST



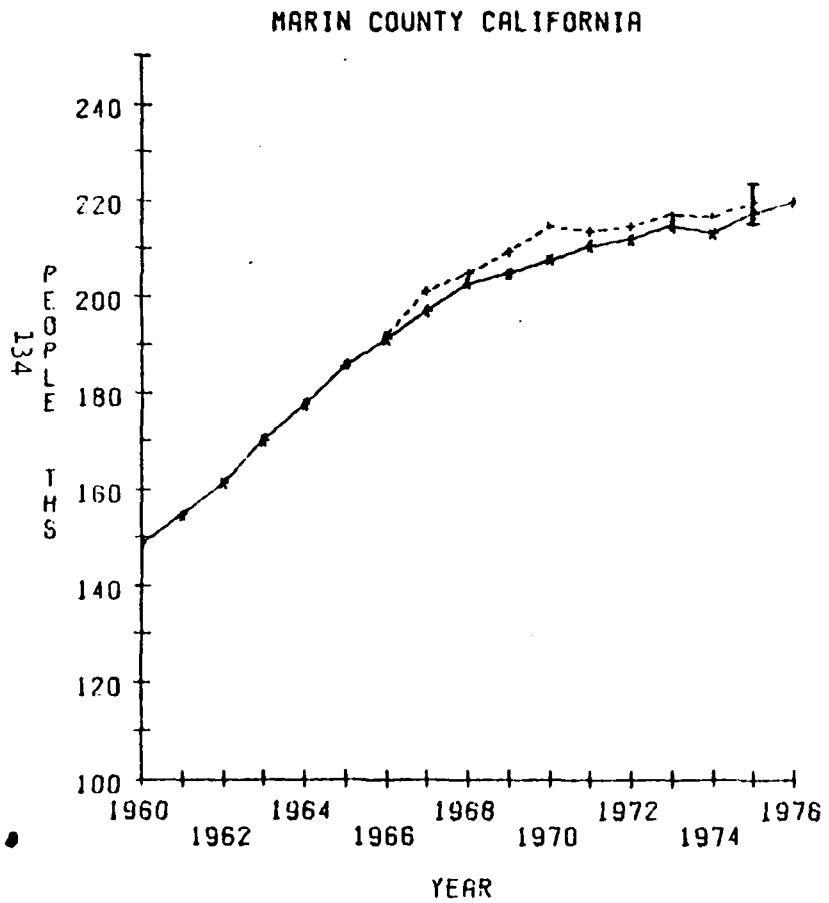
POPULATION

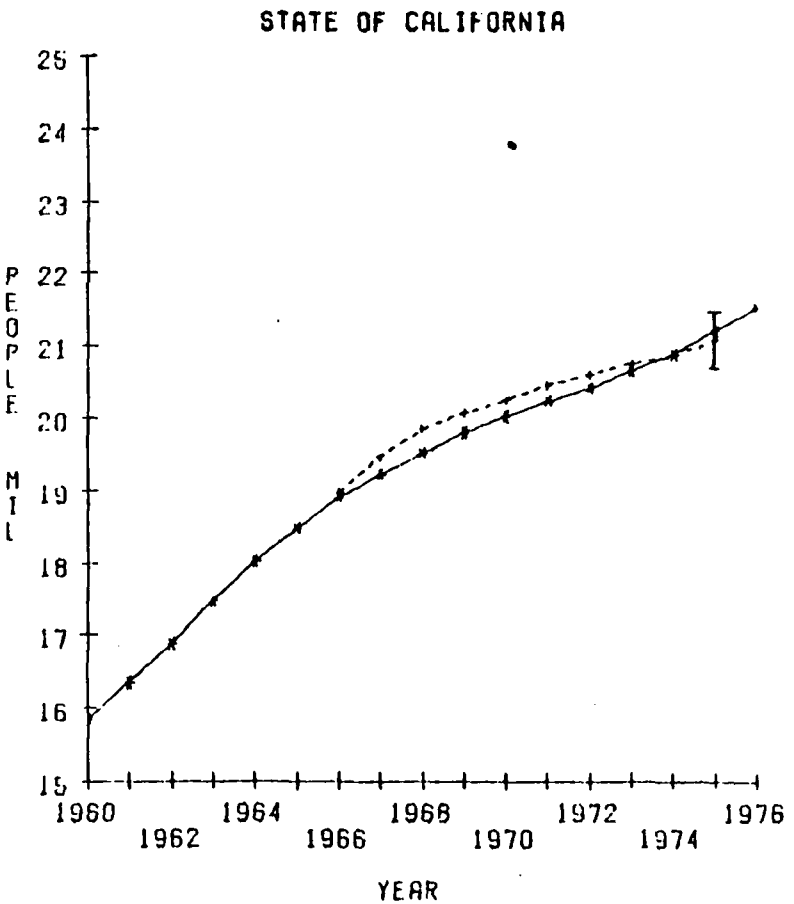
Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	149		15.9	
1961	154		16.4	
1962	162		16.9	
1963	170		17.5	
1964	178		18.0	
1965	186		18.5	
1966	191	192	18.9	19.0
1967	197	201	19.2	19.5
1968	203	205	19.5	19.8
1969	205	209	19.8	20.0
1970	208	215	20.0	20.2
1971	210	213	20.2	20.4
1972	212	214	20.4	20.6
1973	215	217	20.7	20.8
1974	213	217	20.9	20.9
1975	217	219	21.2	21.1

Forecast	County	State
Smoothing Type	2	2
Alpha	.667	.605
MAD	3.33	.206
90%± Safety Interval	6.87	.425
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

POPULATION

* ACTUAL
\+ FORECAST





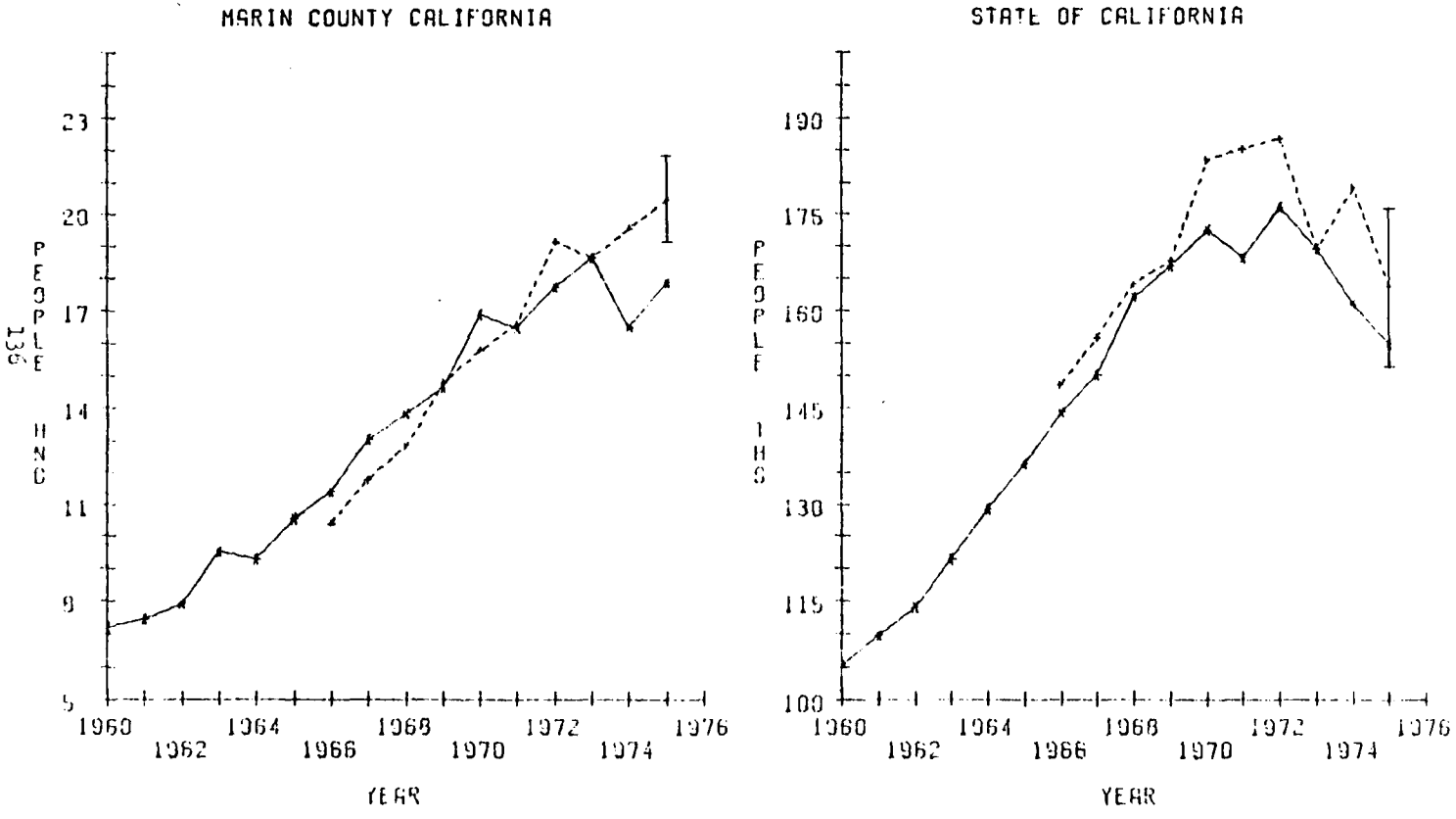
MARRIAGES

Year	County(HND)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	7.20		105	
1961	7.46		110	
1962	7.89		114	
1963	9.50		121	
1964	9.26		129	
1965	10.53		136	
1966	11.37	10.40	144	149
1967	12.99	11.72	150	156
1968	13.77	12.80	162	164
1969	14.60	14.76	167	168
1970	16.86	15.77	172	183
1971	16.44	16.56	168	185
1972	17.70	19.13	176	186
1973	18.60	18.62	169	169
1974	16.47	19.54	161	179
1975	17.85	20.44	155	164

Forecast	County	State
Smoothing Type	2	3
Alpha	.510	.463
MAD	.680	5.91
90%± Safety Interval	1.40	12.2
Decision Scheme		
Inside Safety Interval		X
Outside Safety Interval	X	
Significant Change	Yes	

MARRIAGES

* ACTUAL
\+ FORECAST



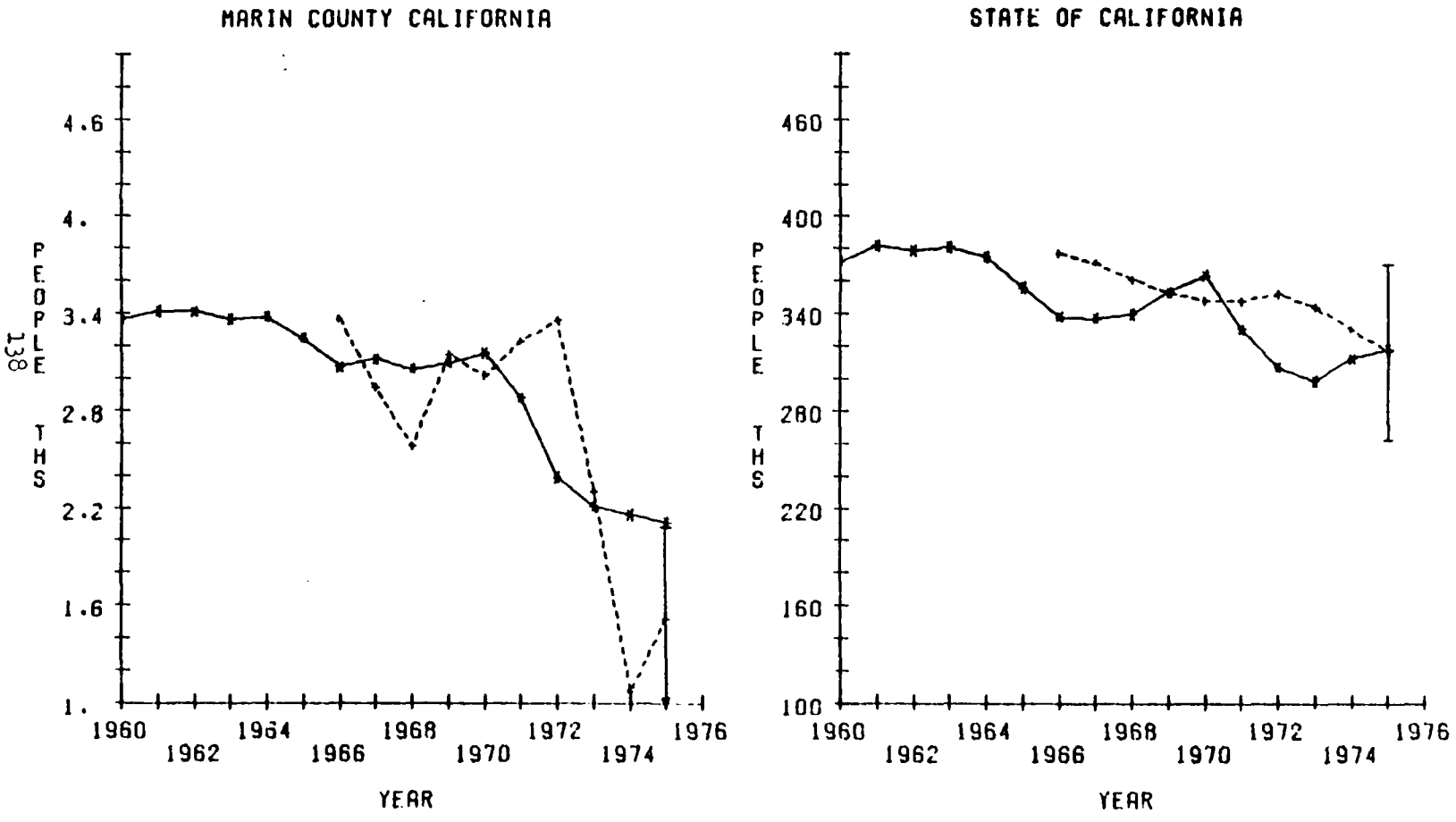
LIVE BIRTHS

Year	County(THS)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	3.36		372	
1961	3.41		381	
1962	3.41		378	
1963	3.36		381	
1964	3.38		375	
1965	3.24		355	
1966	3.07	3.36	338	376
1967	3.12	2.94	337	371
1968	3.05	2.58	339	361
1969	3.10	3.14	353	352
1970	3.15	3.01	363	347
1971	2.88	3.23	330	347
1972	2.39	3.36	306	351
1973	2.21	2.30	298	343
1974	2.16	1.07	312	330
1975	2.11	1.52	317	316

Forecast	County	State
Smoothing Type	3	2
Alpha	.666	.152
MAD	.285	26.5
90%± Safety Interval	.588	54.7
Decision Scheme		
Inside Safety Interval		X
Outside Safety Interval	X	
Significant Change	Yes	

LIVE BIRTHS

* ACTUAL
\+ FORECAST



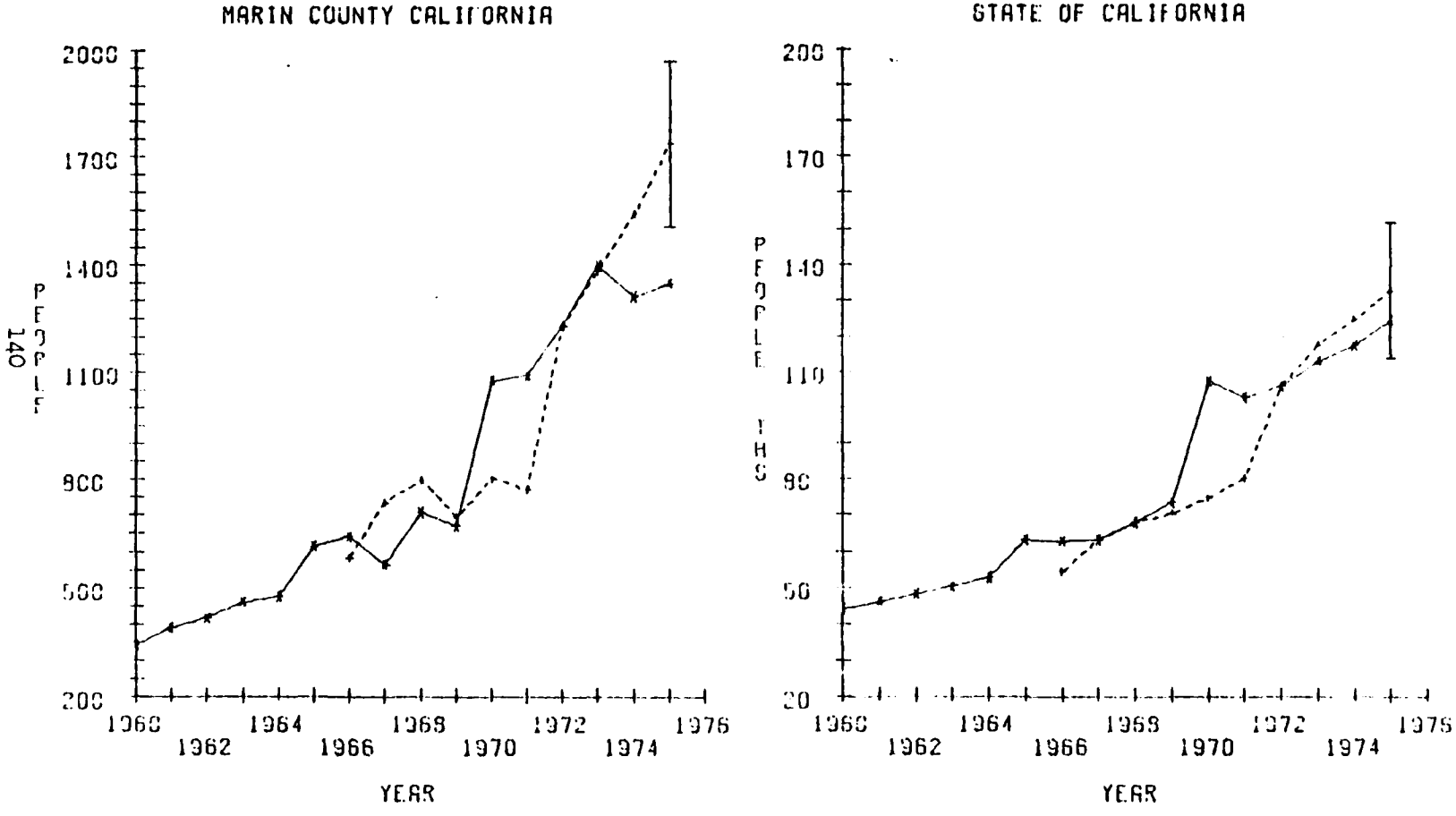
DIVORCES

Year	County( )		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	341		44.04	
1961	389		46	
1962	415		48.03	
1963	460		50.14	
1964	476		52.51	
1965	613		63	
1966	641	551	62.65	54.24
1967	564	715	62.98	63.17
1968	706	789	67.90	67.90
1969	669	694	73.32	70.36
1970	1075	802	107.31	74.52
1971	1089	775	102.85	80.03
1972	1228	1229	105.76	106
1973	1395	1379	112.86	117.45
1974	1308	1541	117.22	124.64
1975	1346	1734	124.24	131.97

Forecast	County	State
Smoothing Type	3	3
Alpha	.307	.193
MAD	106	9
90%± Safety Interval	219	18.56
Decision Scheme		
Inside Safety Interval		X
Outside Safety Interval	X	
Significant Change	Yes	

DIVORCES

* ACTUAL
\+ FORECAST



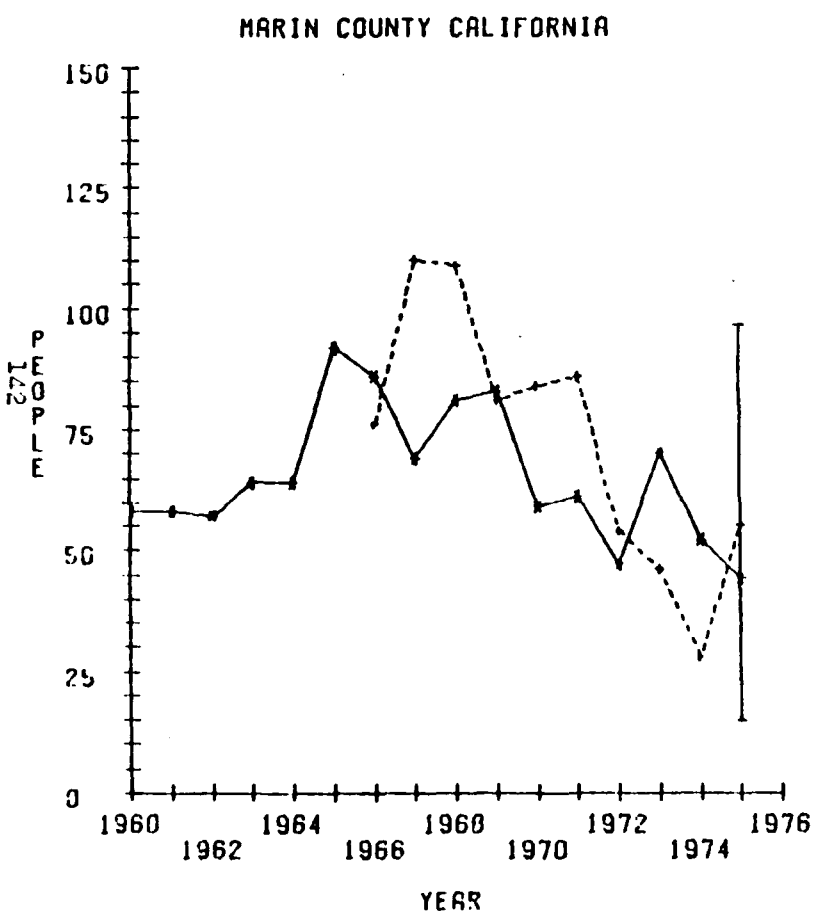
ANNULMENTS

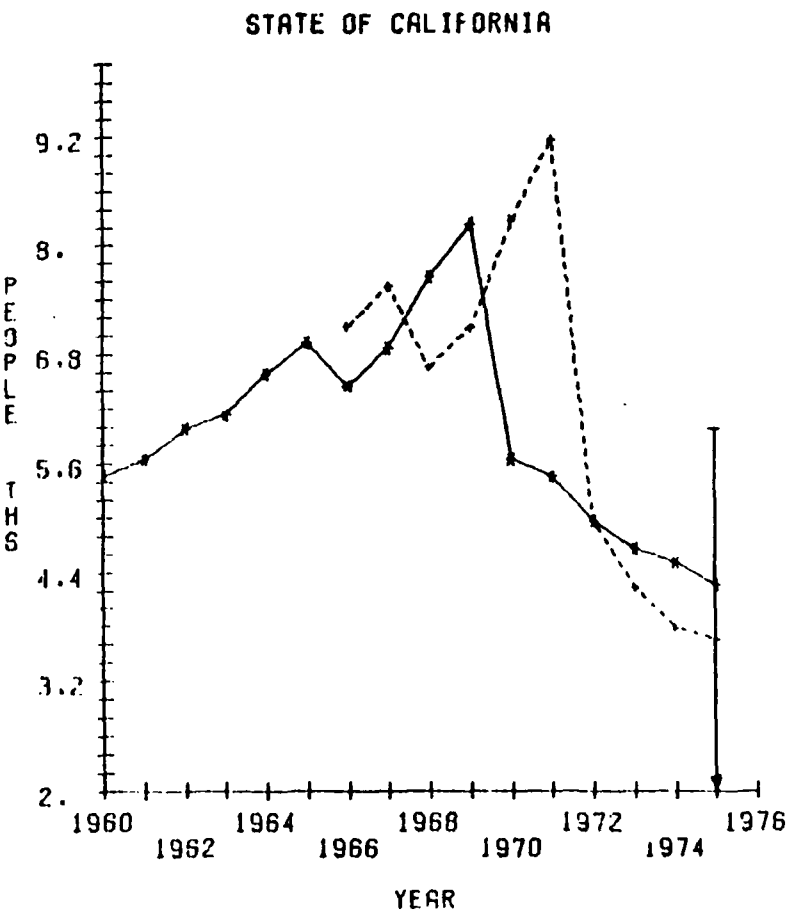
Year	County( )		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	58		5.47	
1961	58		5.64	
1962	57		5.98	
1963	64		6.13	
1964	64		6.59	
1965	92		6.93	
1966	86	76	6.45	7.10
1967	69	110	6.86	7.54
1968	81	109	7.64	6.66
1969	83	81	8.23	7.08
1970	59	84	5.63	8.28
1971	61	86	5.45	9.15
1972	47	54	4.95	4.96
1973	70	46	4.65	4.22
1974	52	28	4.49	3.77
1975	44	55	4.25	3.66

Forecast	County	State
Smoothing Type	3	2
Alpha	.328	.596
MAD	20	1.19
90%± Safety Interval	41.2	2.45
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

ANNULMENTS

* ACTUAL
\+ FORECAST





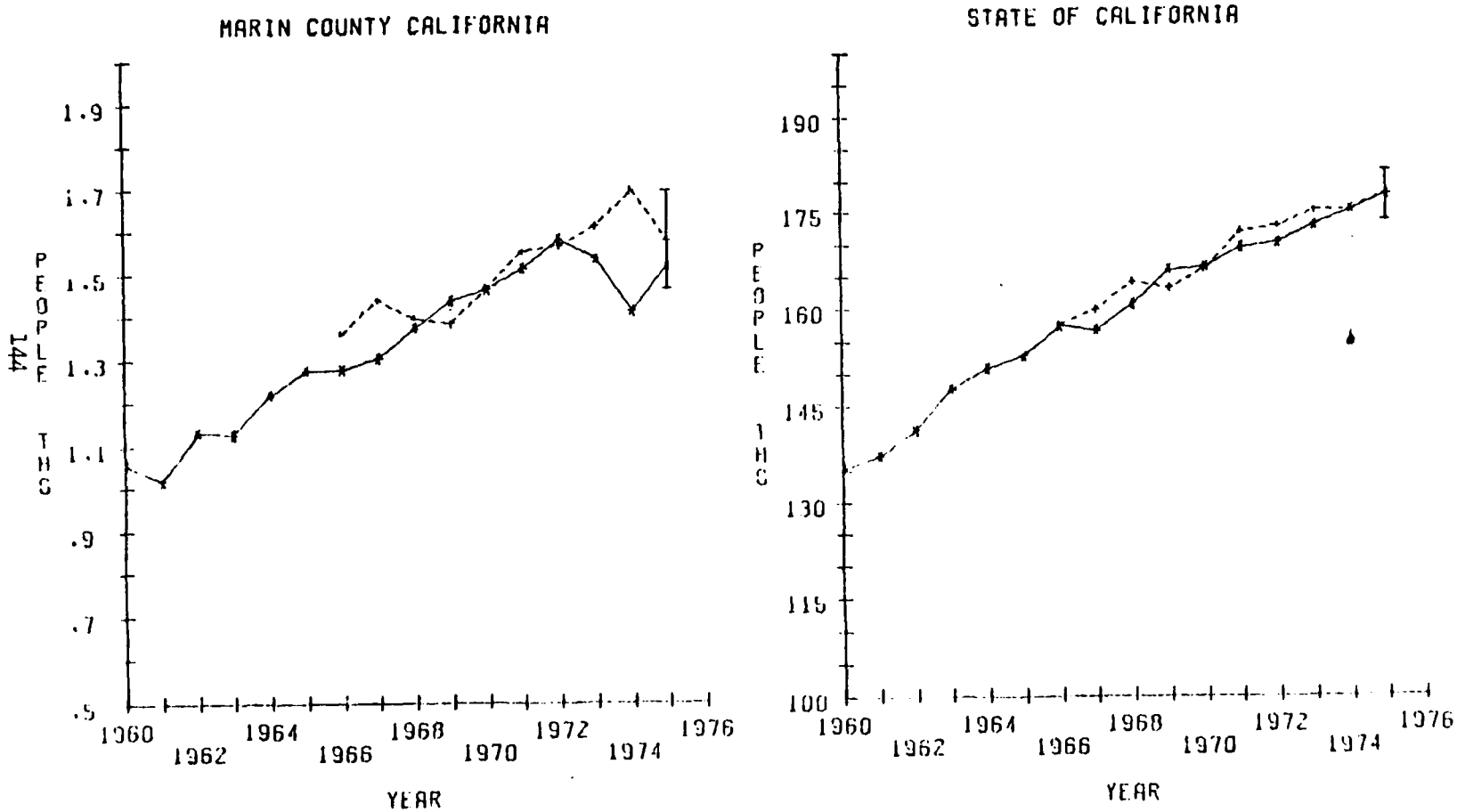
DEATHS

Year	County(THS)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	1.05		135	
1961	1.01		137	
1962	1.13		141	
1963	1.12		148	
1964	1.22		151	
1965	1.27		153	
1966	1.28	1.36	157	158
1967	1.30	1.44	157	160
1968	1.37	1.39	167	164
1969	1.43	1.38	166	163
1970	1.46	1.46	166	166
1971	1.51	1.55	169	172
1972	1.58	1.56	170	173
1973	1.53	1.61	173	175
1974	1.41	1.69	175	175
1975	1.51	1.57	177	177

Forecast	County	State
Smoothing Type	3	2
Alpha	.419	.462
MAD	.052	1.94
90%± Safety Interval	.107	3.99
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

DEATHS

* ACTUAL
\+ FORECAST



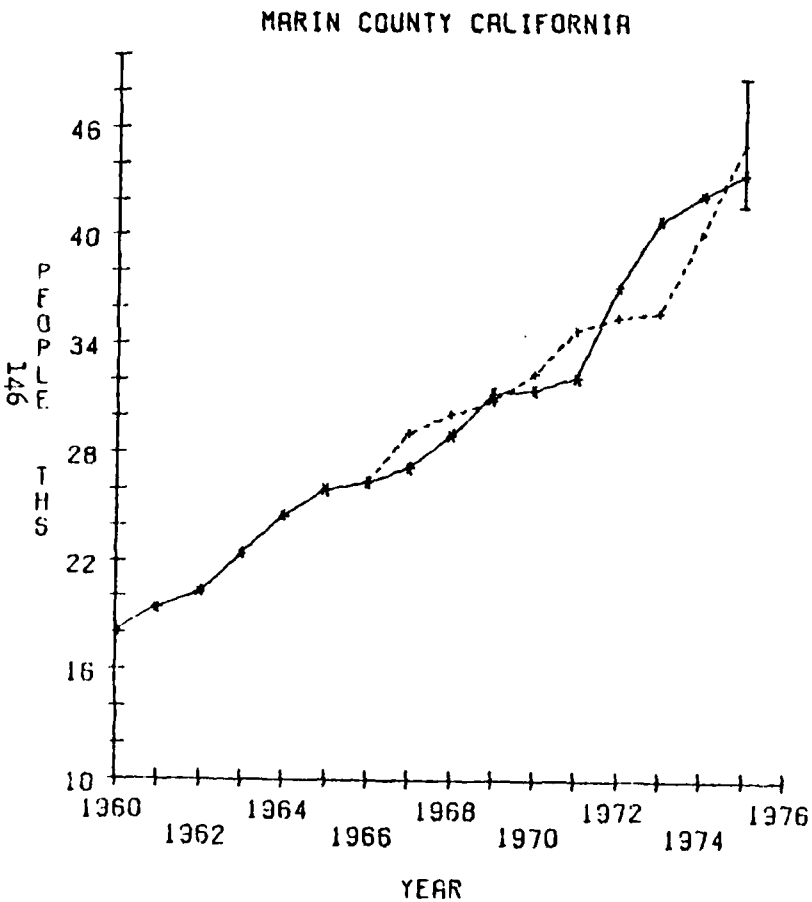
AVERAGE MONTHLY EMPLOYMENT COVERED BY
THE INSURANCE CODE - ALL INDUSTRIES

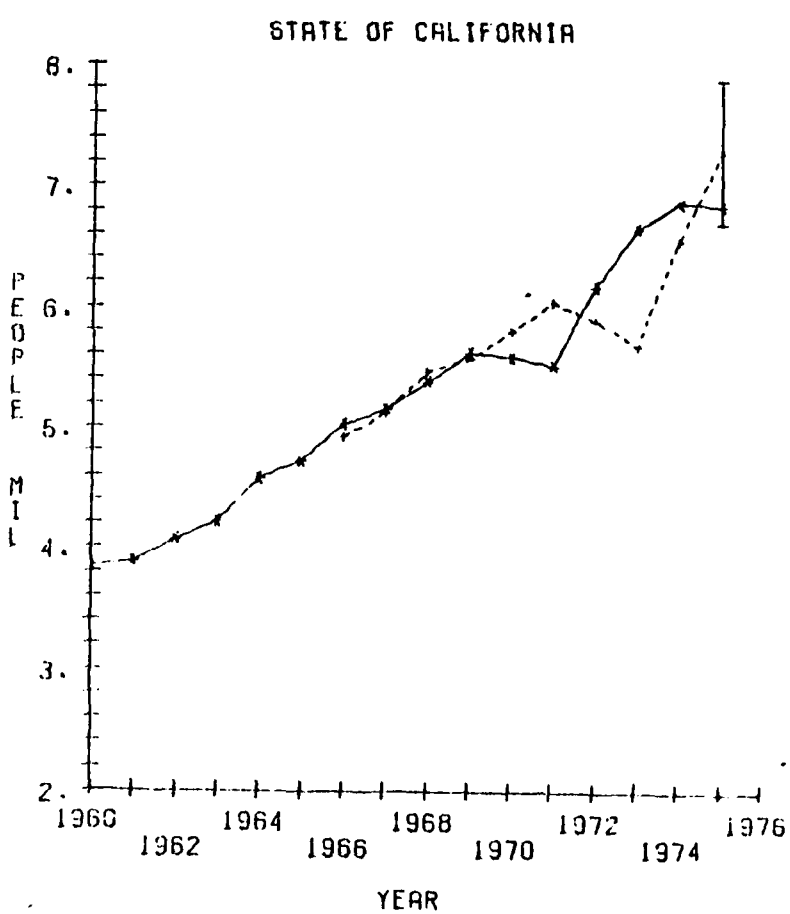
Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	18.1		3.83	
1961	19.4		3.89	
1962	20.3		4.07	
1963	22.4		4.22	
1964	24.5		4.58	
1965	26.0		4.72	
1966	26.4	26.4	5.03	4.92
1967	27.2	29.1	5.16	5.12
1968	29.0	30.2	5.38	5.47
1969	31.3	30.9	5.62	5.58
1970	31.5	32.4	5.58	5.80
1971	32.2	34.8	5.52	6.04
1972	37.2	35.5	6.18	5.90
1973	40.9	35.8	6.65	5.67
1974	42.3	40.2	6.86	6.55
1975	43.5	45.2	6.84	7.29

Forecast	County	State
Smoothing Type	3	2
Alpha	.256	.574
MAD	1.725	.282 716
90%± Safety Interval	3.56	.583
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

AVG MONTHLY EMPLOYMENT -- ALL INDUSTRIES

* ACTUAL
\+ FORECAST





AVERAGE MONTHLY EMPLOYMENT COVERED BY
THE INSURANCE CODE - AGRICULTURE,
FORESTRY, AND FISHING

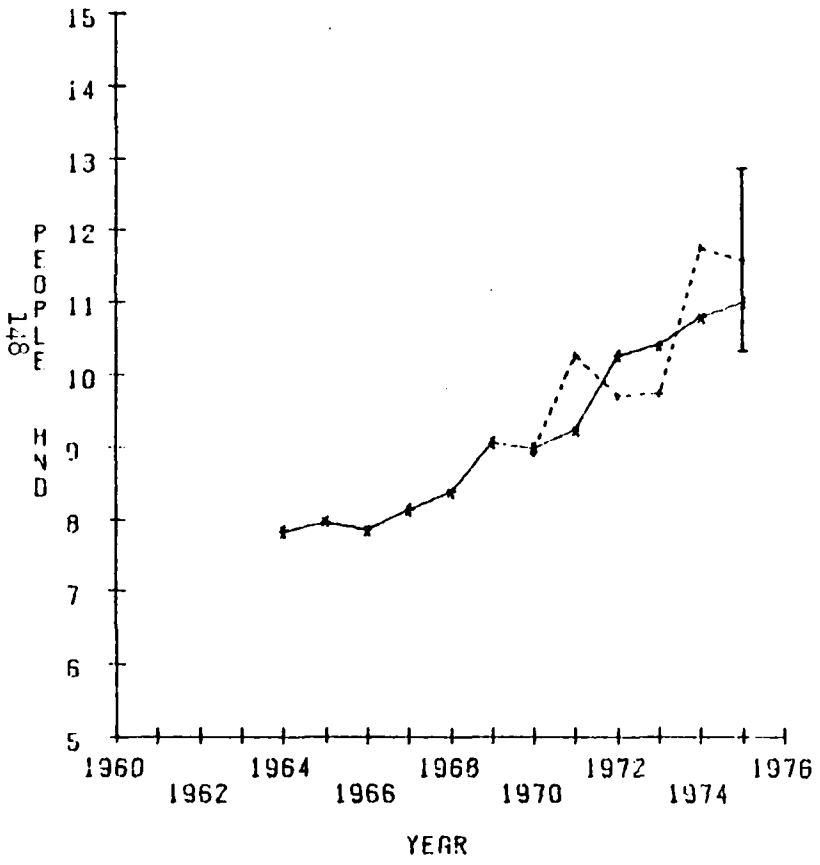
Year	County(HND)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960				
1961				
1962				
1963				
1964	7.81		258	
1965	7.95		289	
1966	7.83		289	
1967	8.11		278	
1968	8.36		289	
1969	9.04		284	
1970	8.97	8.92	278	278
1971	9.21	10.25	270	281
1972	10.25	9.69	284	282
1973	10.39	9.73	308	281
1974	10.77	11.74	330	283
1975	10.98	11.56	337	292

Forecast	County	State
Smoothing Type	3	3
Alpha	.5	.083
MAD	.580	10.013
90%± Safety Interval	1.20	20.6
Decision Scheme		
Inside Safety Interval	X	
Outside Safety Interval		X
Significant Change	No	

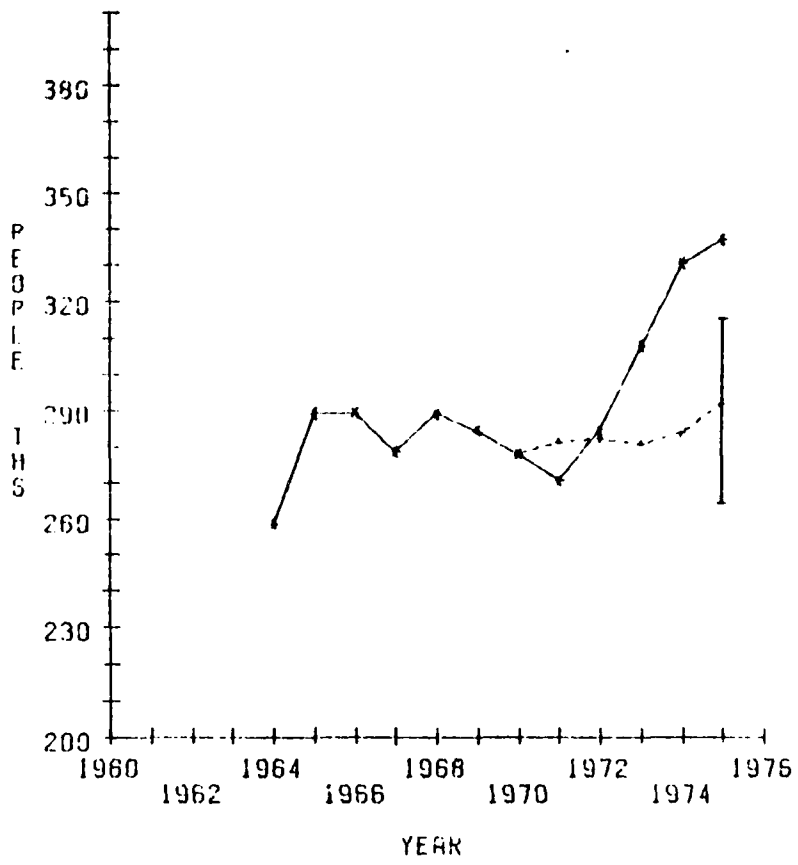
AVG MONTHLY EMPLOYMENT -- AGRI, FOREST, + FISH

* ACTUAL
\+ FORECAST

MARIN COUNTY CALIFORNIA



STATE OF CALIFORNIA



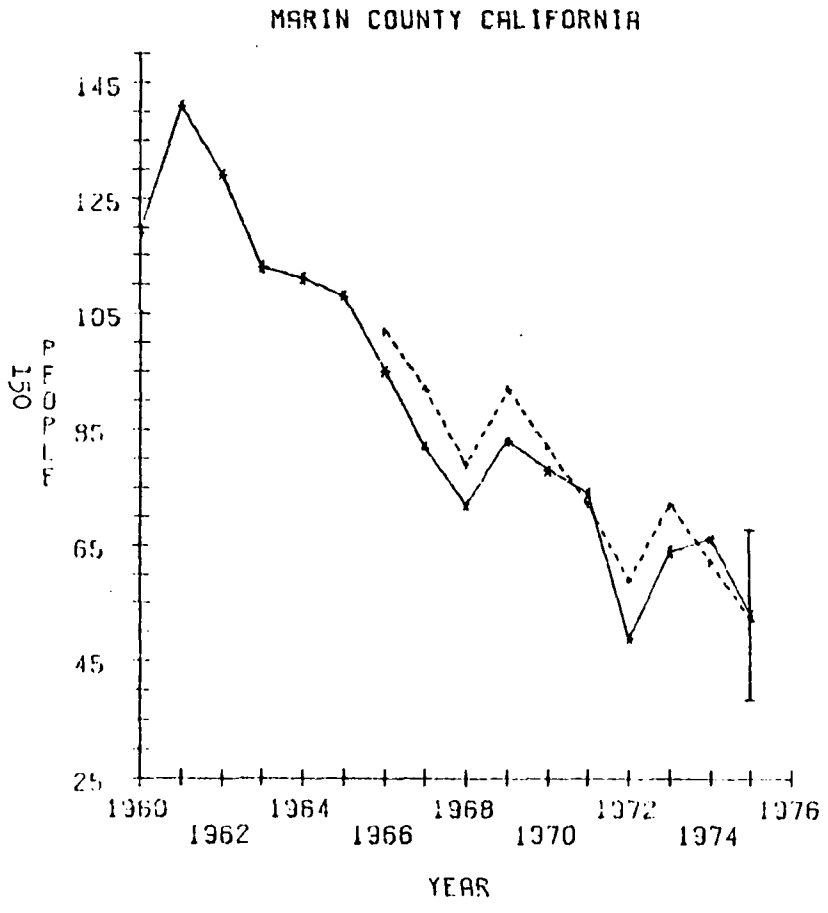
AVERAGE MONTHLY EMPLOYMENT COVERED BY
THE INSURANCE CODE - MINING

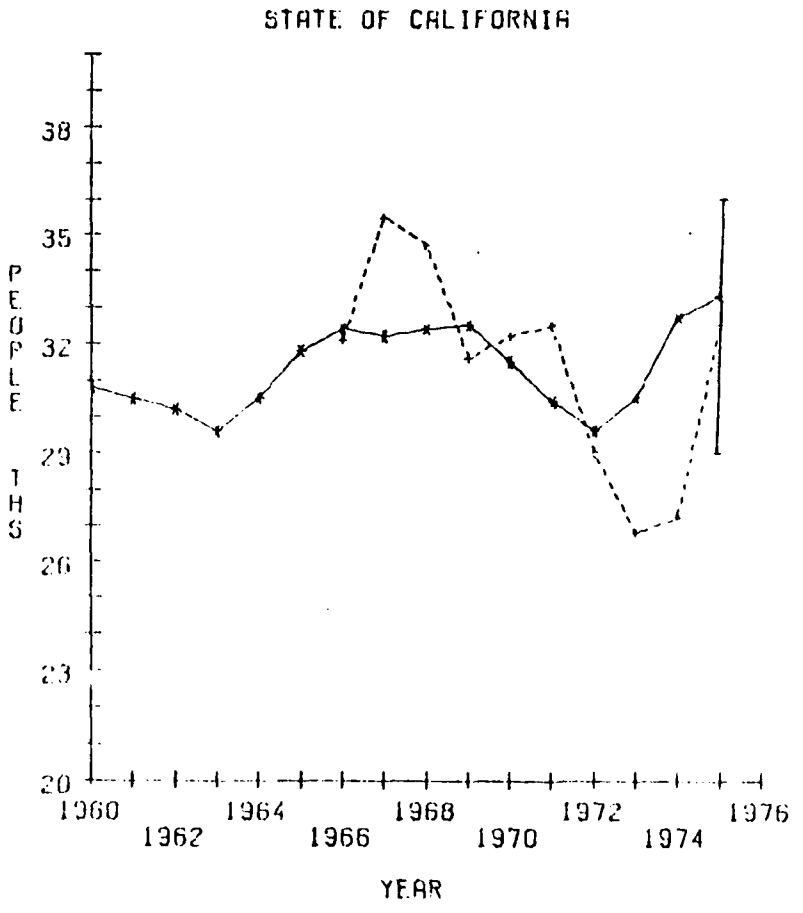
Year	County( )		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	119		30.8	
1961	141		30.5	
1962	129		30.2	
1963	113		29.6	
1964	111		30.5	
1965	108		31.8	
1966	95	102	32.4	32.1
1967	82	92	32.2	35.5
1968	72	79	32.4	34.7
1969	83	92	32.5	31.6
1970	78	82	31.5	32.2
1971	74	72	30.4	32.5
1972	49	59	29.6	29.0
1973	64	72	30.5	26.8
1974	66	62	32.7	27.2
1975	53	52	33.3	32.5

Forecast	County	State
Smoothing Type	1	3
Alpha	.001	.667
MAD	7	1.764
90%± Safety Interval	14.4	3.64
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

AVG MONTHLY EMPLOYMENT -- MINING

* ACTUAL
\+ FORECAST





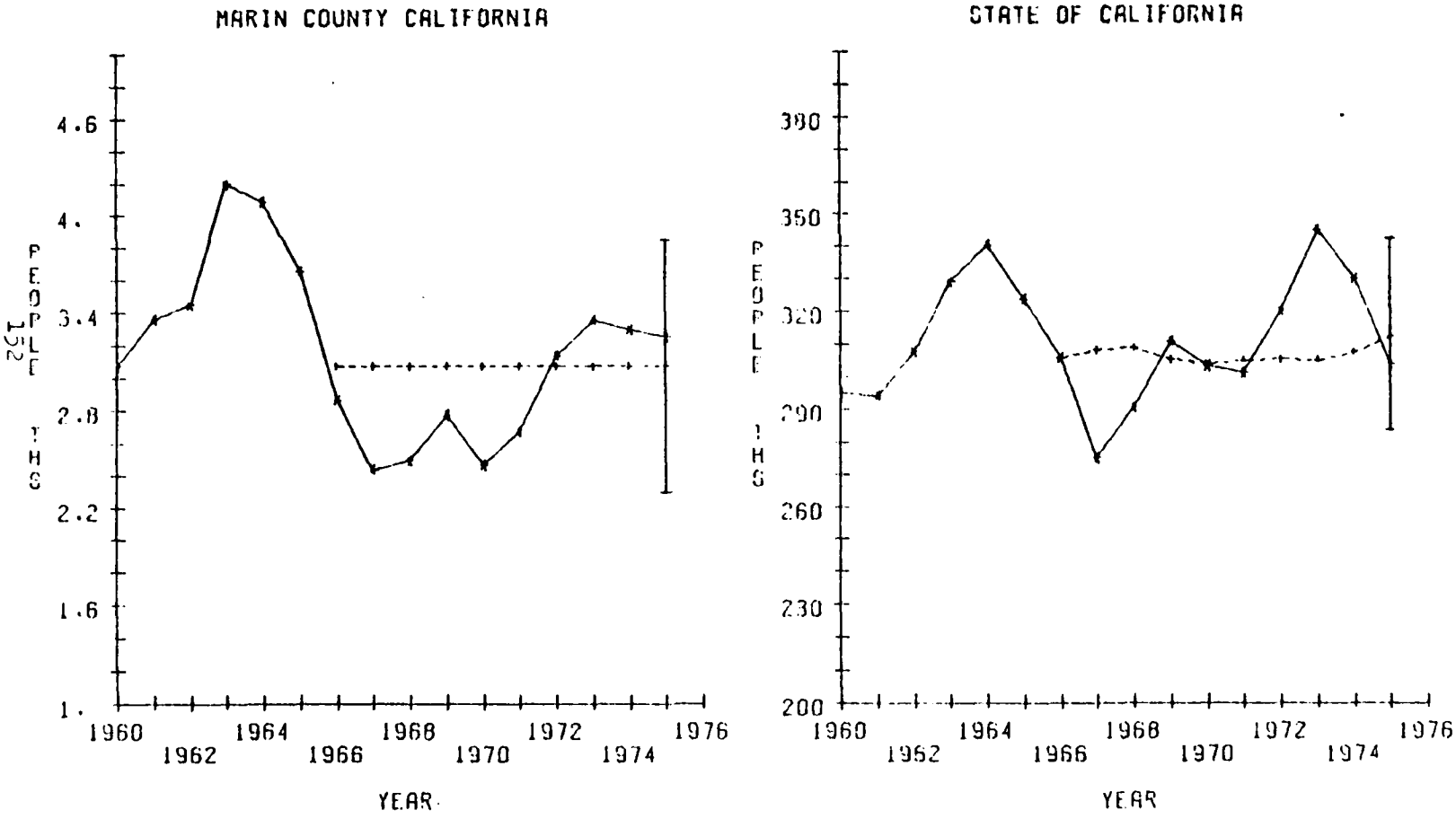
AVERAGE MONTHLY EMPLOYMENT COVERED BY
THE INSURANCE CODE - CONSTRUCTION

Year	County(THS)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	3.07		295	
1961	3.36		294	
1962	3.45		307	
1963	4.19		329	
1964	4.08		340	
1965	3.65		324	
1966	2.86	3.07	305	306
1967	2.43	3.07	275	308
1968	2.48	3.07	291	308
1969	2.77	3.07	311	305
1970	2.46	3.07	303	304
1971	2.67	3.07	301	305
1972	3.13	3.07	320	305
1973	3.36	3.07	345	305
1974	3.30	3.07	330	307
1975	3.25	3.07	303	312

Forecast	County	State
Smoothing Type	1	3
Alpha	.001	.039
MAD	.387	14.548
90%± Safety Interval	.798	30.0
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

AVG MONTHLY EMPLOYMENT -- CONSTRUCTION

* ACTUAL
\+ FORECAST



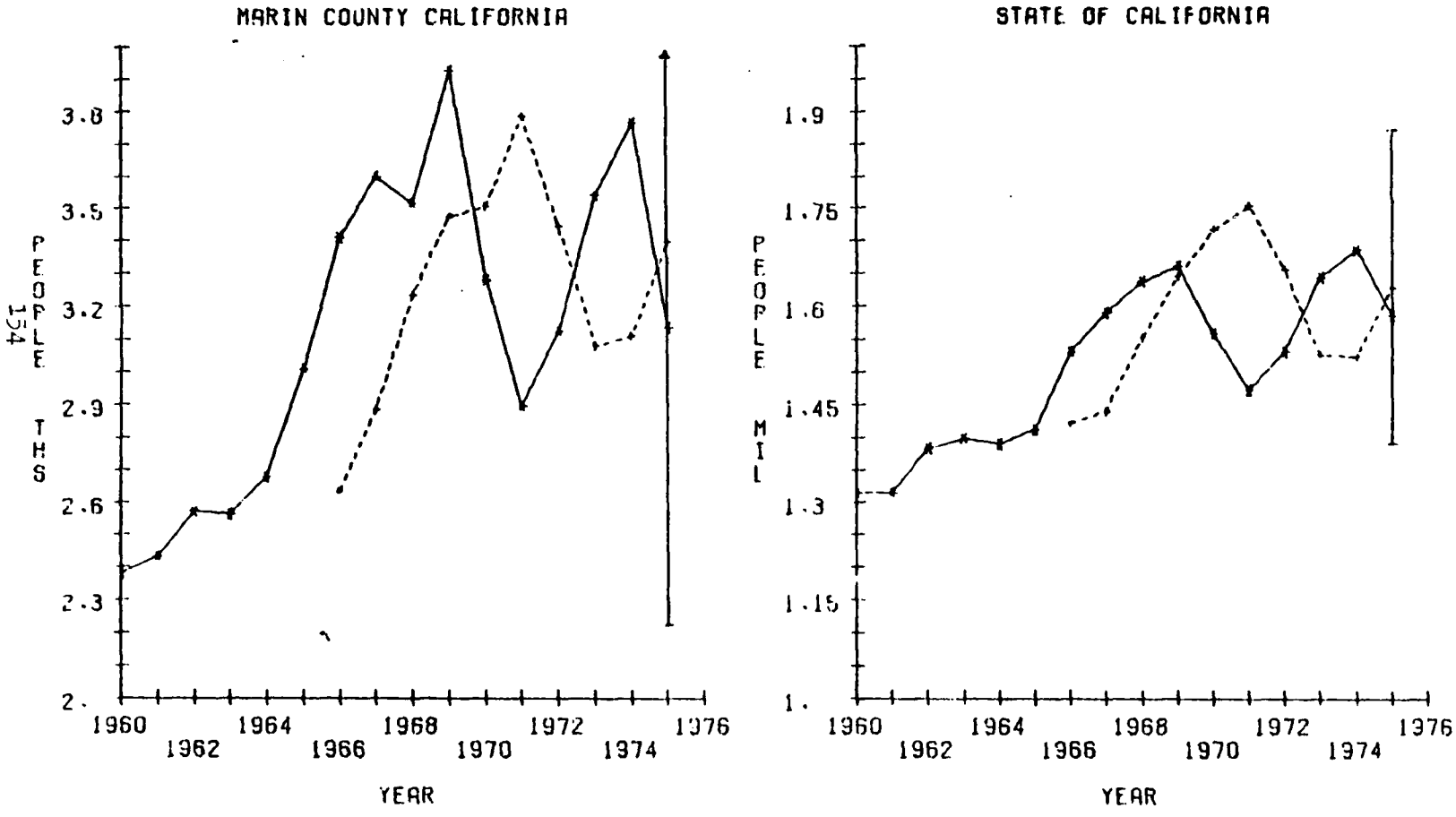
AVERAGE MONTHLY EMPLOYMENT COVERED BY
THE INSURANCE CODE - MANUFACTURING

Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	2.38		1.31	
1961	2.43		1.31	
1962	2.57		1.38	
1963	2.56		1.40	
1964	2.68		1.39	
1965	3.01		1.41	
1966	3.41	2.64	1.53	1.42
1967	3.60	2.89	1.59	1.44
1968	3.52	3.24	1.64	1.55
1969	3.92	3.48	1.66	1.65
1970	3.28	3.51	1.55	1.72
1971	2.90	3.78	1.47	1.75
1972	3.13	3.45	1.53	1.65
1973	3.54	3.08	1.64	1.53
1974	3.76	3.11	1.69	1.52
1975	3.14	3.40	1.59	1.63

Forecast	County	State
Smoothing Type	1	2
Alpha	.666	.390
MAD	.515	.113 237
90%± Safety Interval	1.06	.233
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

AVG MONTHLY EMPLOYMENT -- MANUFACTURING

* ACTUAL
\+ FORECAST



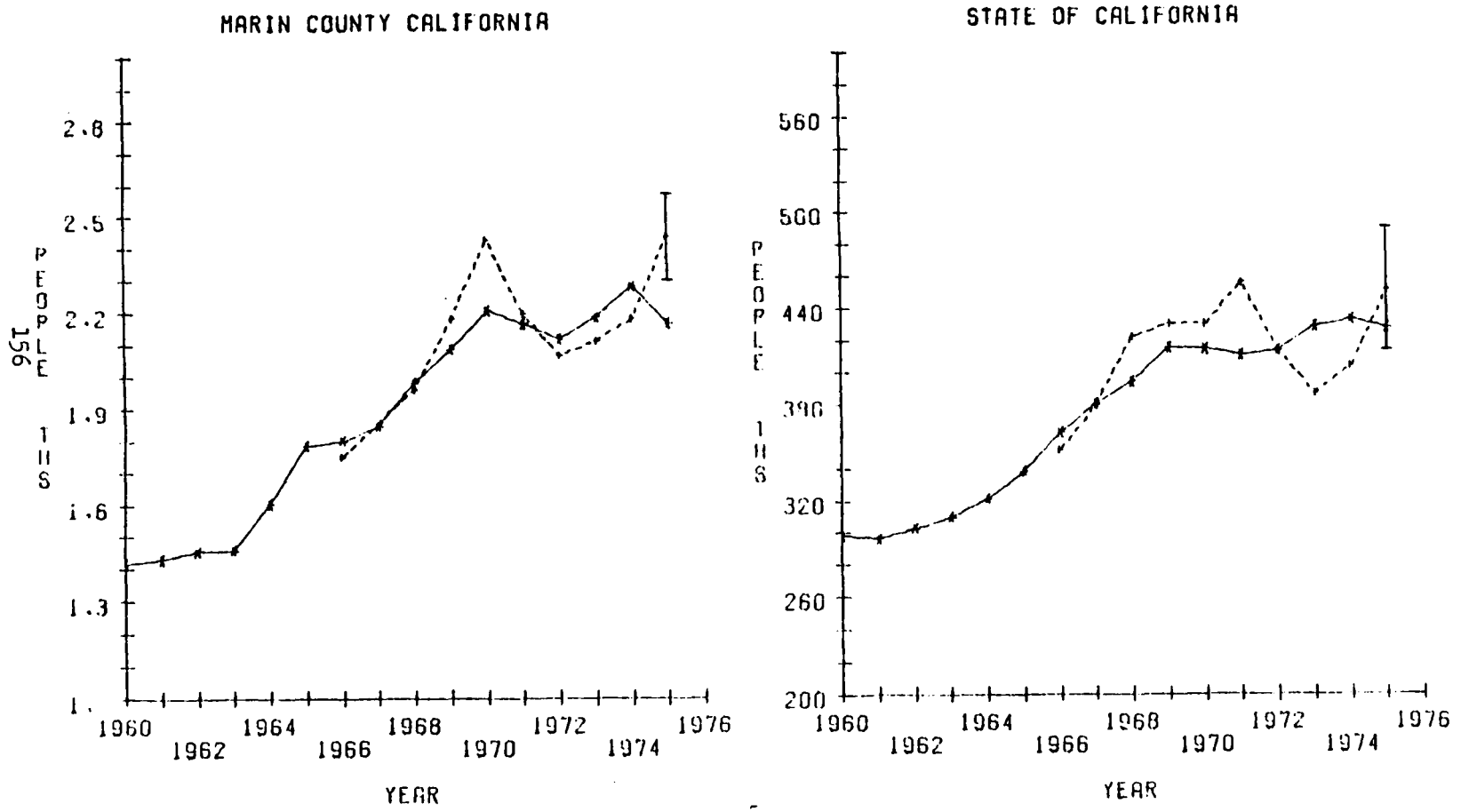
AVERAGE MONTHLY EMPLOYMENT COVERED BY
THE INSURANCE CODE - TRANSPORTATION
AND PUBLIC UTILITIES

Year	County(THS)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	1.42		298	
1961	1.43		296	
1962	1.45		303	
1963	1.46		310	
1964	1.69		321	
1965	1.78		338	
1966	1.80	1.75	362	351
1967	1.85	1.85	380	379
1968	1.98	1.96	394	422
1969	2.09	2.18	415	430
1970	2.20	2.43	414	430
1971	2.17	2.20	410	455
1972	2.12	2.06	413	413
1973	2.18	2.11	428	386
1974	2.28	2.18	432	403
1975	2.17	2.44	427	450

Forecast	County	State
Smoothing Type	3	3
Alpha	.667	.629
MAD	.069	19.517
90%± Safety Interval	.142	40.2
Decision Scheme		
Inside Safety Interval		X
Outside Safety Interval	X	
Significant Change	Yes	

AVG MONTHLY EMPLOYMENT-TRANS + PUBLIC UTIL

* ACTUAL
\+ FORECAST



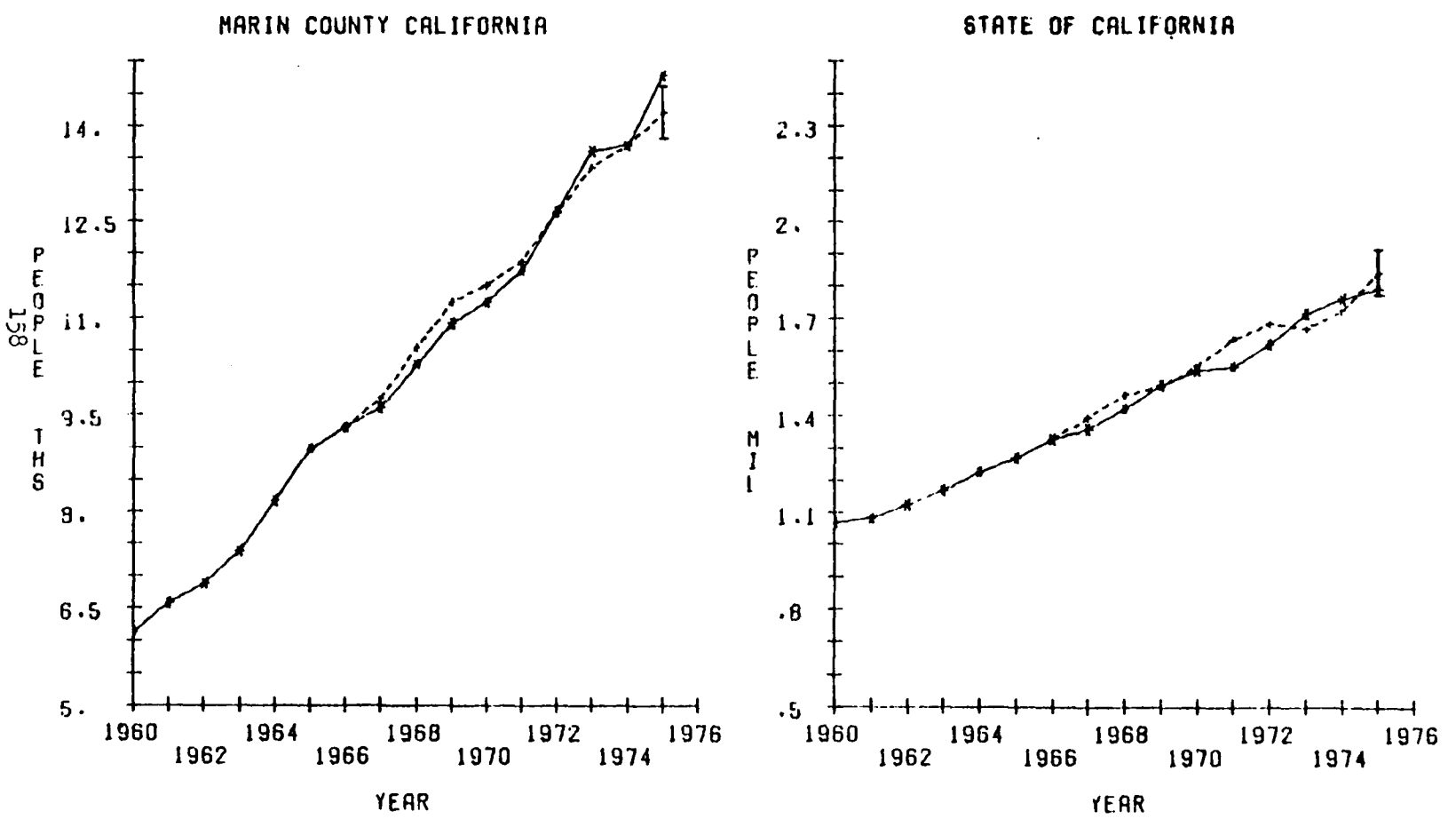
AVERAGE MONTHLY EMPLOYMENT COVERED BY
THE INSURANCE CODE - WHOLESALE AND
RETAIL TRADE

Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	6.14		1.07	
1961	6.58		1.08	
1962	6.88		1.12	
1963	7.38		1.17	
1964	8.16		1.22	
1965	8.98		1.27	
1966	9.31	9.29	1.33	1.33
1967	9.60	9.74	1.35	1.39
1968	10.29	10.56	1.42	1.47
1969	10.93	11.26	1.50	1.49
1970	11.25	11.50	1.54	1.55
1971	11.74	11.87	1.55	1.64
1972	12.66	12.63	1.62	1.68
1973	13.59	13.35	1.71	1.67
1974	13.86	13.68	1.76	1.72
1975	14.76	14.20	1.79	1.84

Forecast	County	State
Smoothing Type	1	3
Alpha	.299	.360
MAD	.175	.037
90%± Safety Interval	.361	.076
Decision Scheme		
Inside Safety Interval		X
Outside Safety Interval	X	
Significant Change	Yes	

AVG MONTHLY EMPLOYMENT--WHOLESALE + RETAIL TRADE

* ACTUAL
\+ FORECAST



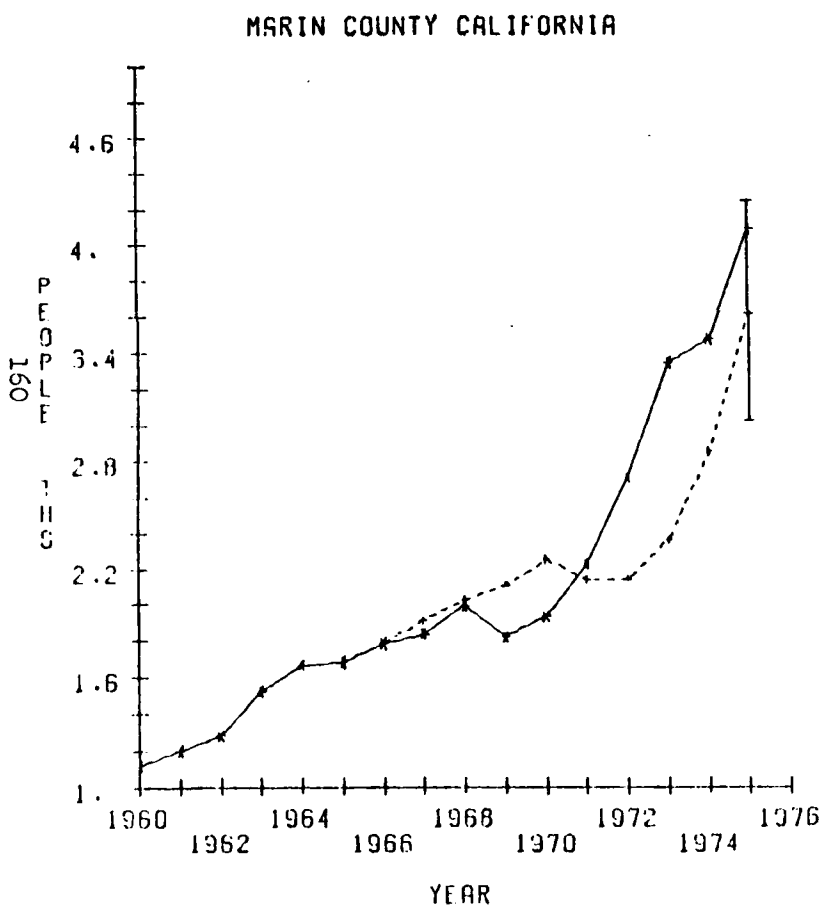
AVERAGE MONTHLY EMPLOYMENT COVERED BY
THE INSURANCE CODE - FINANCE,
INSURANCE, AND REAL ESTATE

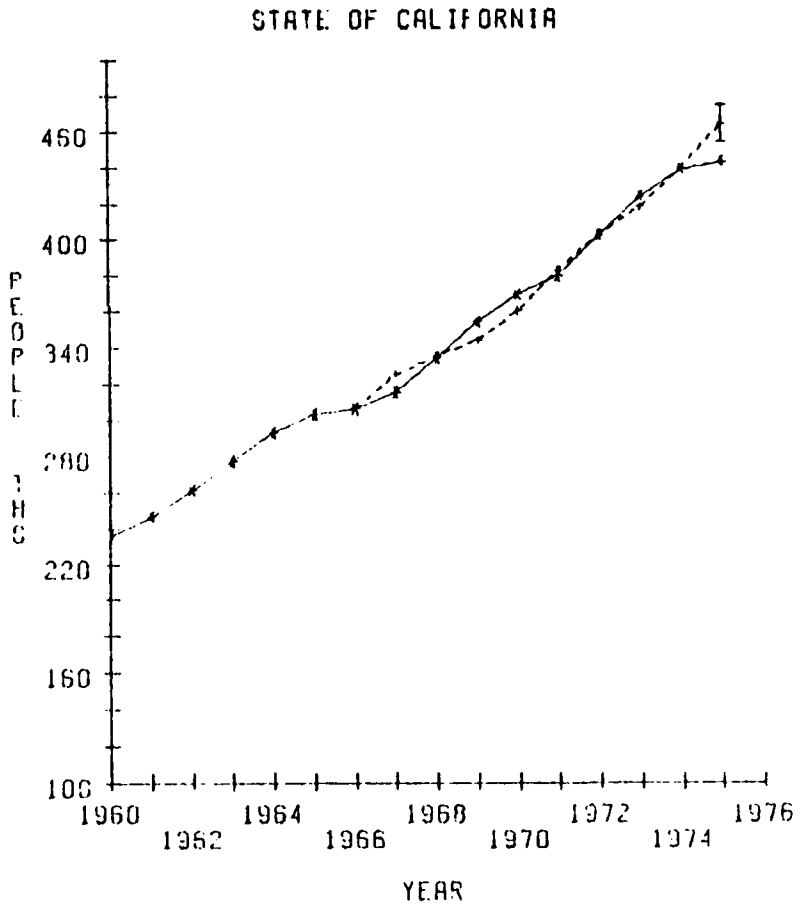
Year	County(THS)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	1.12		236	
1961	1.20		246	
1962	1.28		261	
1963	1.52		277	
1964	1.67		293	
1965	1.69		303	
1966	1.78	1.78	306	306
1967	1.84	1.91	315	325
1968	1.99	2.03	334	335
1969	1.82	2.11	354	344
1970	1.93	2.24	369	360
1971	2.22	2.14	379	382
1972	2.70	2.14	402	403
1973	3.34	2.36	423	417
1974	3.47	2.85	438	439
1975	4.08	3.61	442	462

Forecast	County	State
Smoothing Type	3	3
Alpha	.228	.226
MAD	.293	5.06
90%± Safety Interval	.604	10.4
Decision Scheme		
Inside Safety Interval	X	
Outside Safety Interval		X
Significant Change	No	

AVG MONTHLY EMPLOYMENT -- FIN, INS, + REAL EST

* ACTUAL
\+ FORECAST





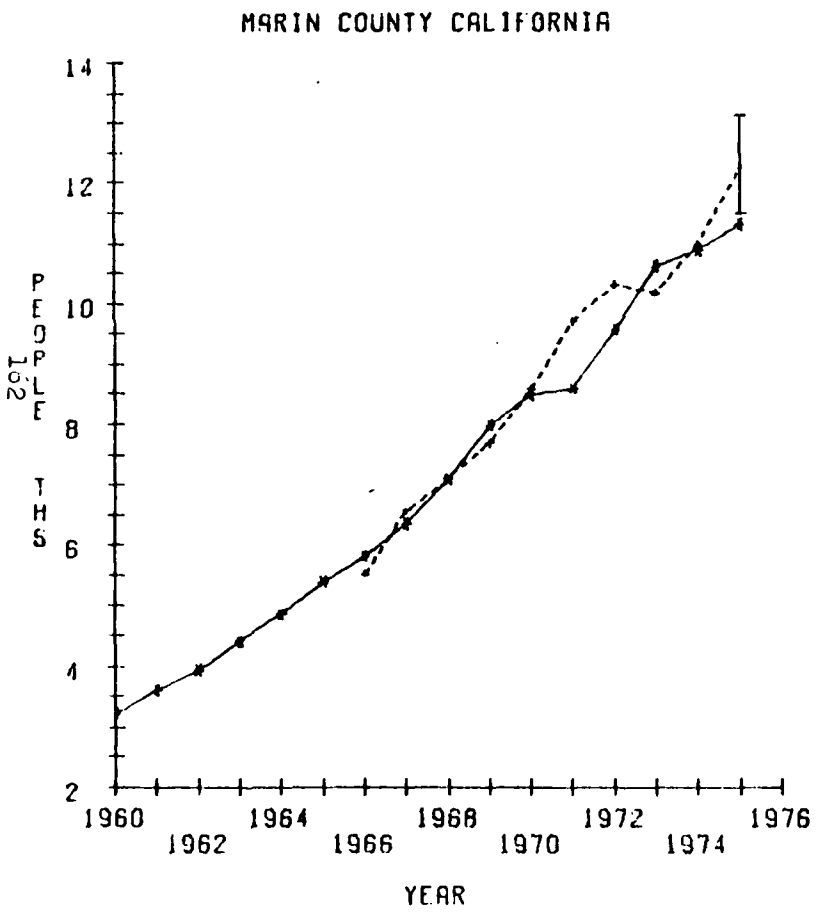
AVERAGE MONTHLY EMPLOYMENT COVERED BY
THE INSURANCE CODE - SERVICES

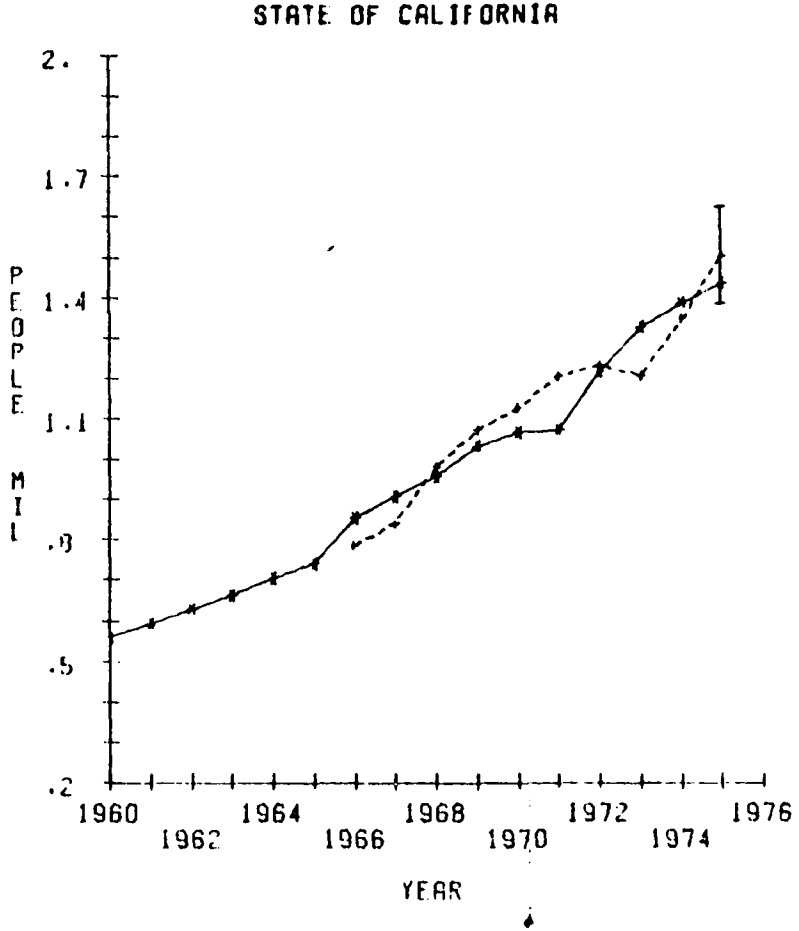
Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	3.22		.556	
1961	3.60		.591	
1962	3.93		.626	
1963	4.40		.661	
1964	4.86		.702	
1965	5.38		.739	
1966	5.81	5.51	.851	.785
1967	6.34	6.54	.905	.836
1968	7.09	7.07	.955	.97
1969	7.98	7.64	1.030	1.068
1970	8.49	8.51	1.064	1.124
1971	8.58	9.62	1.069	1.199
1972	9.55	10.24	1.211	1.227
1973	10.59	10.09	1.323	1.200
1974	10.86	10.91	1.382	1.340
1975	11.28	12.17	1.430	1.496

Forecast	County	State
Smoothing Type	3	3
Alpha	.336	.329
MAD	.349	.066
90%± Safety Interval	.720	.135
Decision Scheme		
Inside Safety Interval		X
Outside Safety Interval	X	
Significant Change	Yes	

AVG MONTHLY EMPLOYMENT -- SERVICES

* ACTUAL
\+ FORECAST





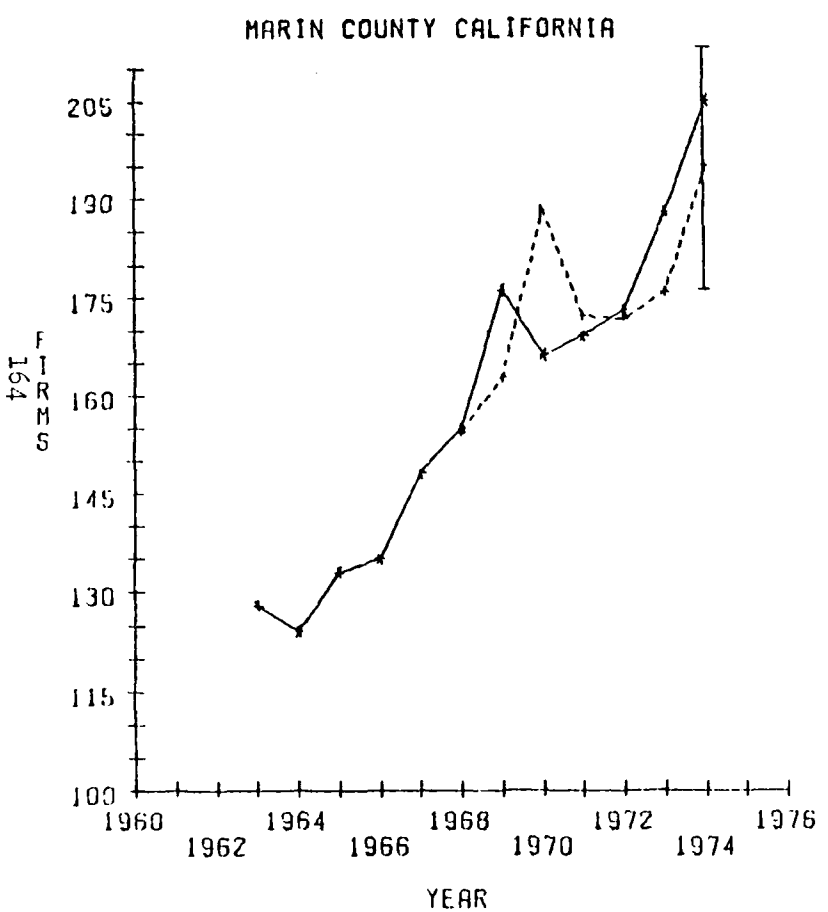
NUMBER OF MANUFACTURING FIRMS

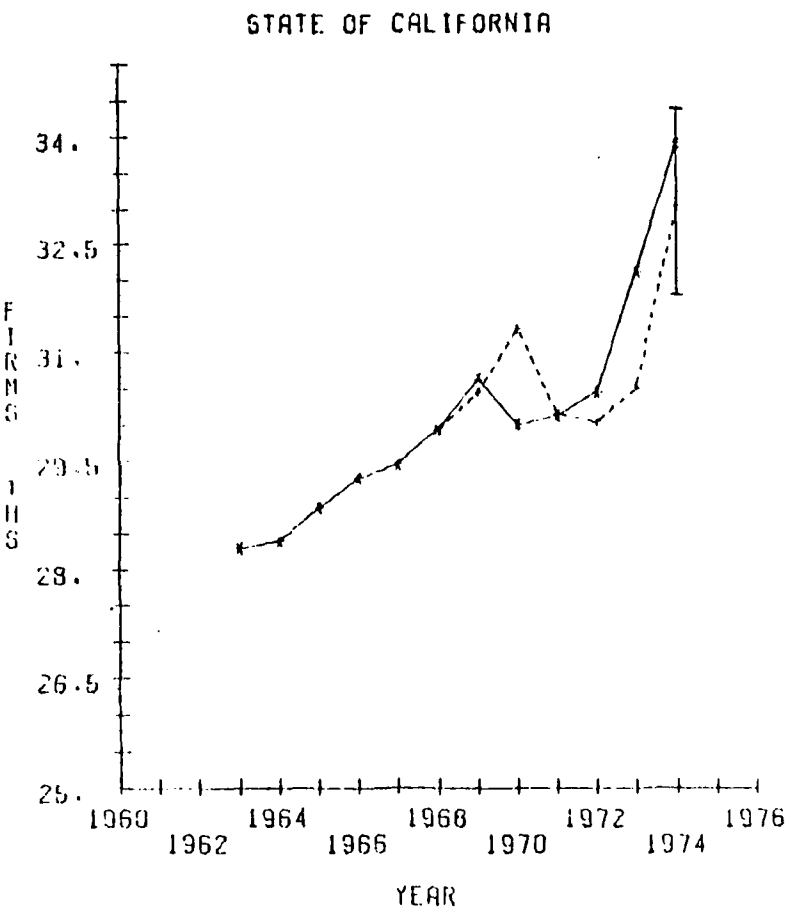
Year	County( )		State(THS)	
	Actual	Forecast	Actual	Forecast
1960				
1961				
1962				
1963	128		28.3	
1964	124		28.4	
1965	133		28.8	
1966	135		29.3	
1967	148		29.4	
1968	155	154	29.9	29.9
1969	176	163	30.6	30.4
1970	166	188	30	31.3
1971	169	172	30.1	30.1
1972	173	172	30.5	30
1973	188	176	32.1	30.5
1974	205	195	33.9	33
1975				

Forecast	County	State
Smoothing Type	2	3
Alpha	.667	.502
MAD	8.81	.59
90%± Safety Interval	18.2	1.22
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

NUMBER OF MANUFACTURING FIRMS

* ACTUAL
\+ FORECAST





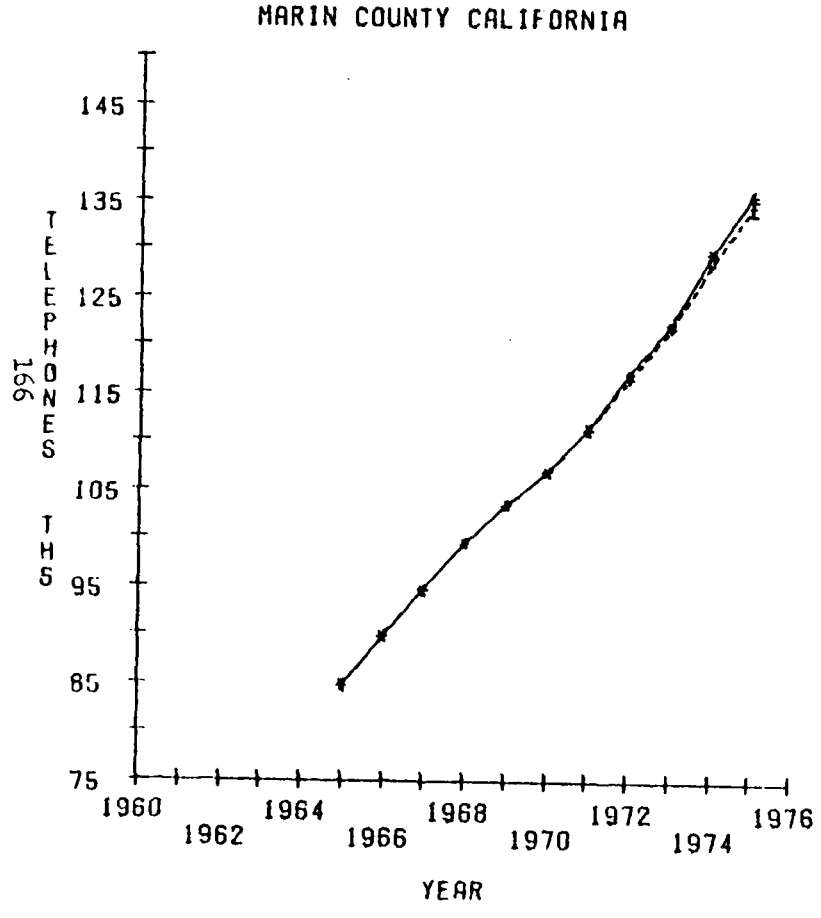
NUMBER OF TELEPHONES - RESIDENCE

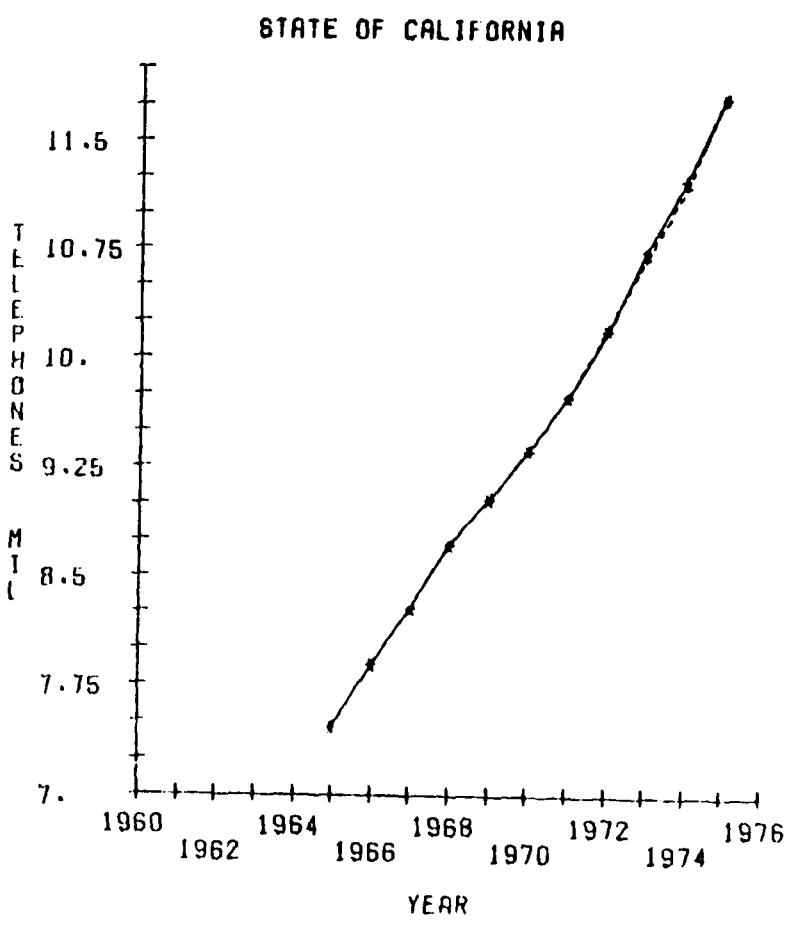
Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960				
1961				
1962				
1963				
1964				
1965	84.8		7.47	
1966	89.9		7.89	
1967	94.7		8.28	
1968	99.6		8.72	
1969	103.5		9.04	
1970	107		9.37	
1971	111.3	111.4	9.74	9.74
1972	117.2	116.7	10.20	10.22
1973	122.2	121.9	10.74	10.69
1974	129.6	128.4	11.24	11.19
1975	135.7	134.6	11.80	11.81

Forecast	County	State
Smoothing Type	3	3
Alpha	.267	.276
MAD	.27	.031
90%± Safety Interval	.557	.064
Decision Scheme		
Inside Safety Interval		X
Outside Safety Interval	X	
Significant Change	Yes	

NUMBER OF TELEPHONES -- RESIDENCE

* ACTUAL
\+ FORECAST





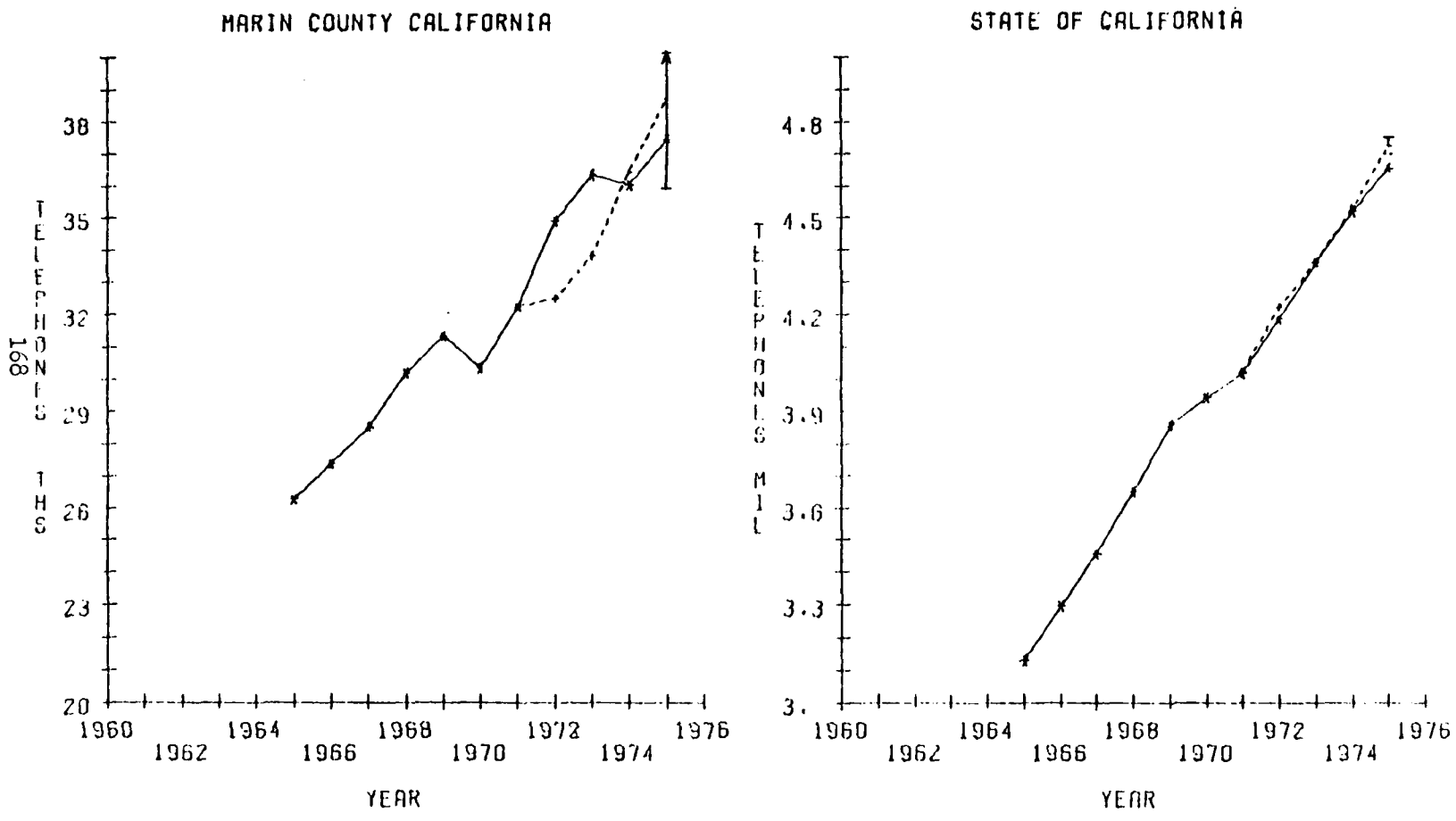
NUMBER OF TELEPHONES - BUSINESS

Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960				
1961				
1962				
1963				
1964				
1965	26.3		3.13	
1966	27.4		3.30	
1967	28.5		3.46	
1968	30.2		3.65	
1969	31.3		3.86	
1970	30.4		3.94	
1971	32.2	32.2	4.02	4.02
1972	34.9	32.5	4.18	4.22
1973	36.3	33.8	4.36	4.36
1974	36	36.4	4.52	4.53
1975	37.5	38.7	4.65	4.72

Forecast	County	State
Smoothing Type	3	3
Alpha	.208	.226
MAD	1.64	.01
90%± Safety Interval	3.38	.021
Decision Scheme		
Inside Safety Interval	X	
Outside Safety Interval		X
Significant Change	No	

NUMBER OF TELEPHONES -- BUSINESS

* ACTUAL
\+ FORECAST



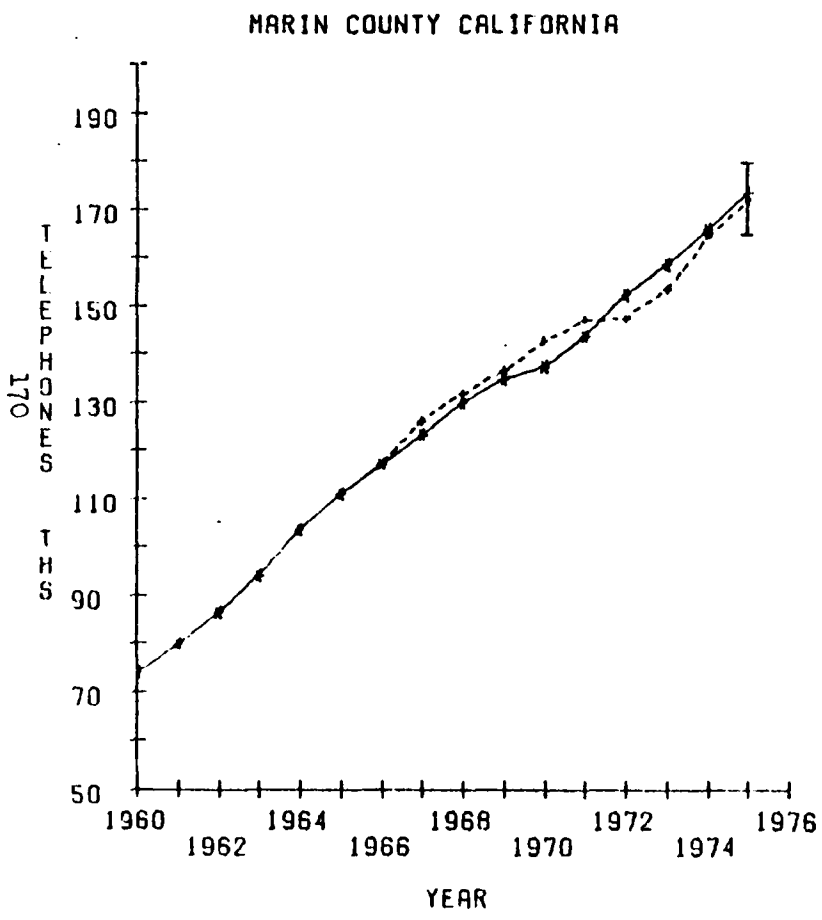
NUMBER OF TELEPHONES - TOTAL

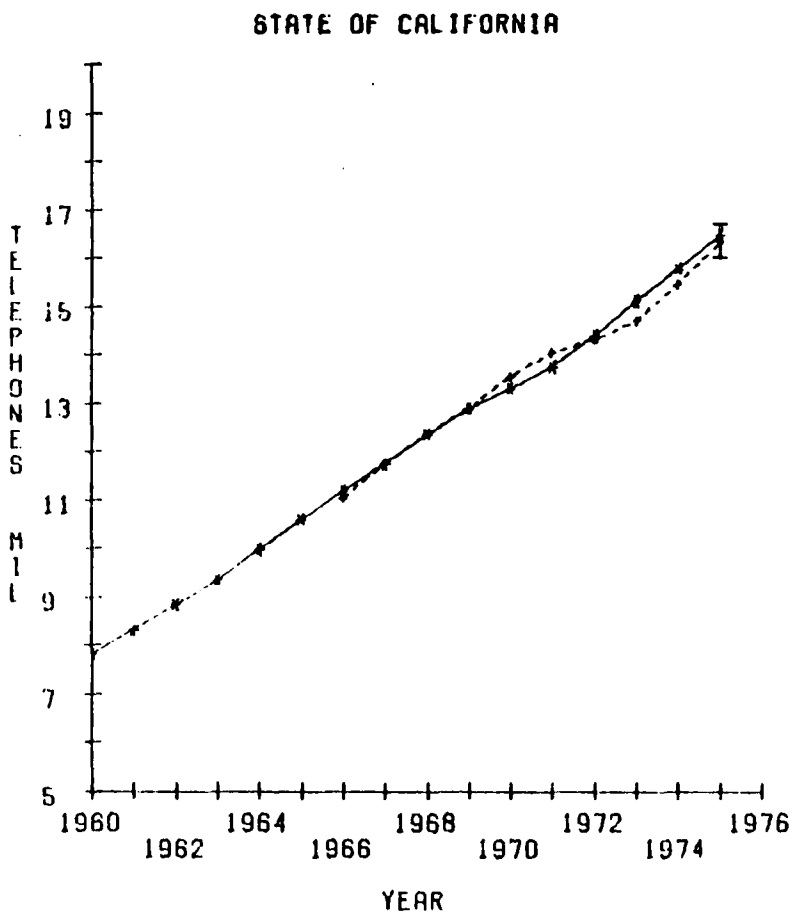
Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	74.1		7.82	
1961	80		8.30	
1962	86.6		8.85	
1963	94.2		9.34	
1964	103.5		9.98	
1965	111		10.59	
1966	117.3	117.3	11.19	11.02
1967	123.2	126.1	11.73	11.75
1968	129.8	131.7	12.36	12.37
1969	134.9	136.7	12.89	12.88
1970	137.4	142.8	13.31	13.55
1971	143.6	147	13.75	14.03
1972	152.1	147.1	14.38	14.32
1973	158.6	153.4	15.10	14.69
1974	165.7	164.3	15.76	15.43
1975	173.2	171.8	16.45	16.32

Forecast	County	State
Smoothing Type	2	2
Alpha	.618	.667
MAD	3.23	.149
90%± Safety Interval	6.66	.307
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

NUMBER OF TELEPHONES -- TOTAL

* ACTUAL
\+ FORECAST





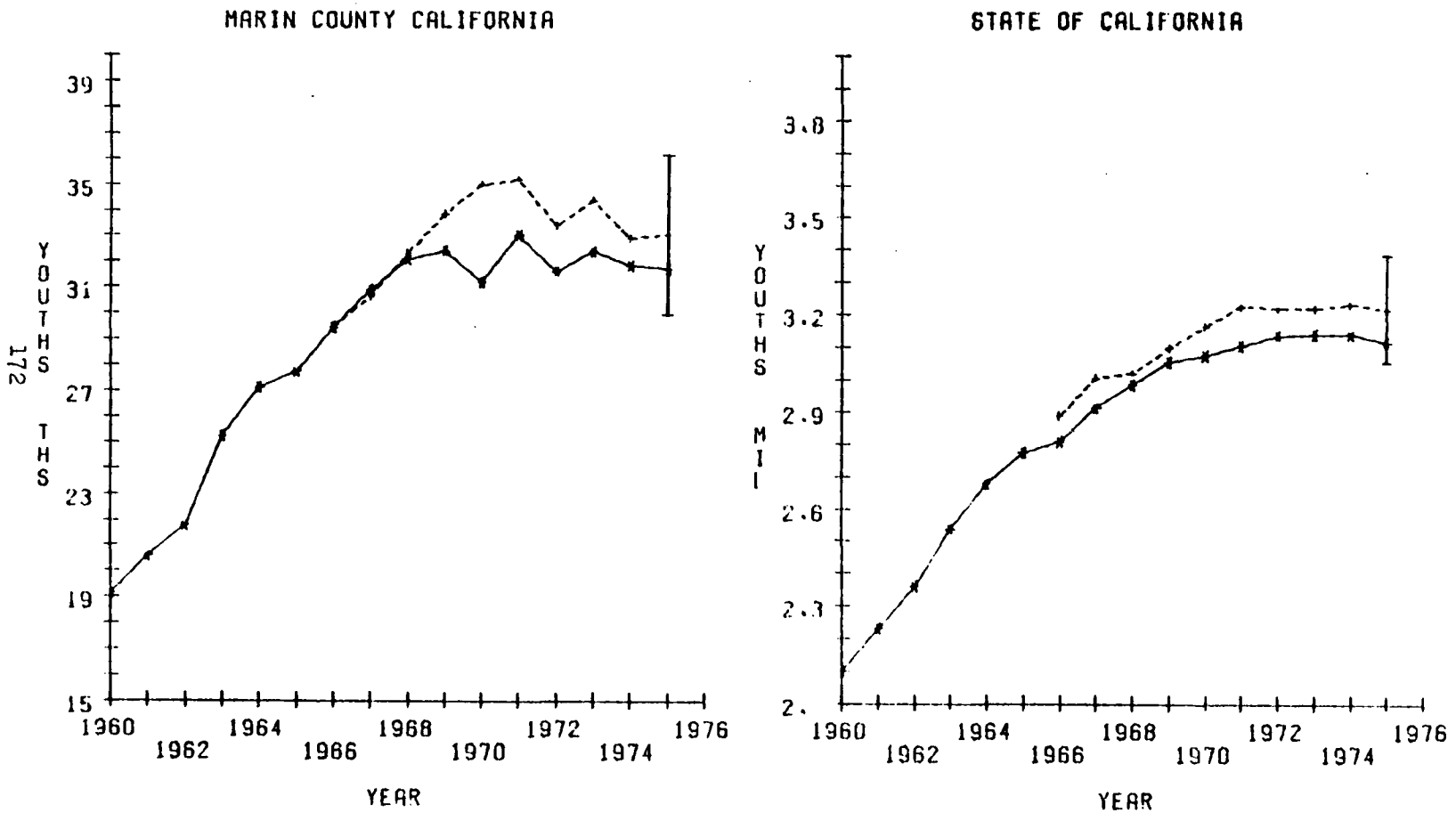
YOUTH POPULATION - AGES 10-17

Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	19.1		2.10	
1961	20.6		2.23	
1962	21.8		2.36	
1963	25.2		2.54	
1964	27.1		2.68	
1965	27.7		2.77	
1966	29.4	29.4	2.81	2.89
1967	30.9	30.7	2.91	3.01
1968	32.1	32.3	2.98	3.02
1969	32.4	33.8	3.06	3.10
1970	31.2	35	3.07	3.16
1971	33	35.2	3.11	3.22
1972	31.6	33.4	3.14	3.22
1973	32.4	34.4	3.14	3.22
1974	31.8	32.9	3.14	3.23
1975	31.7	33	3.12	3.21

Forecast	County	State
Smoothing Type	2	2
Alpha	.438	.507
MAD	1.46	.078
90%± Safety Interval	3.01	.161
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

YOUTH POPULATION -- AGES 10 - 17

* ACTUAL
\+ FORECAST



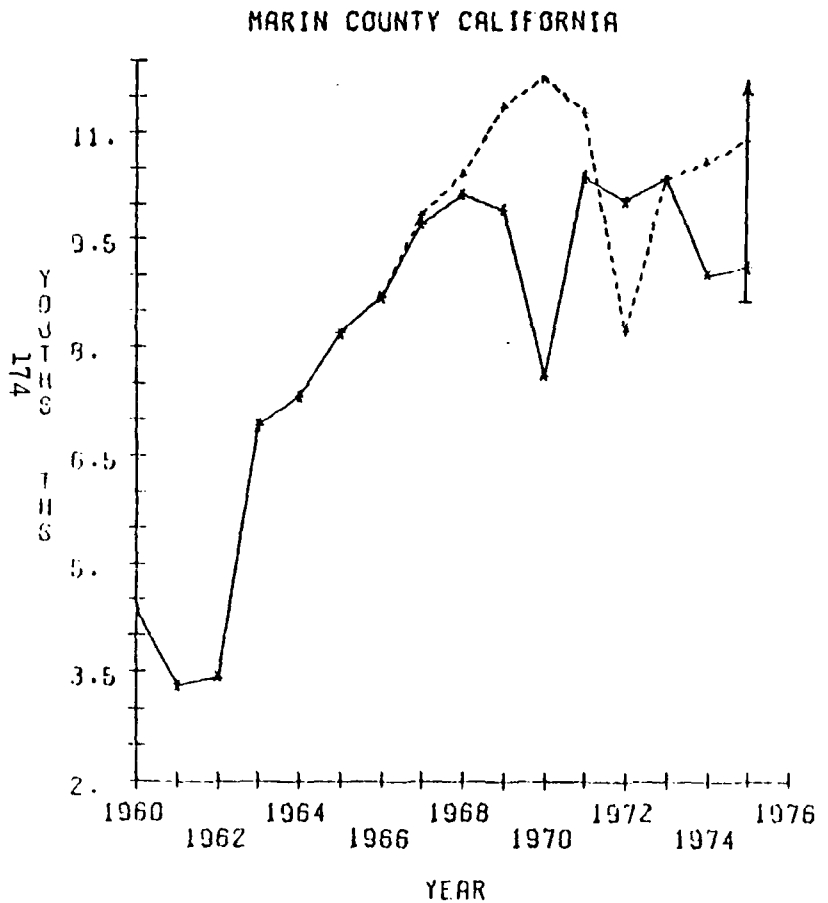
YOUTH POPULATION - AGES 18-20

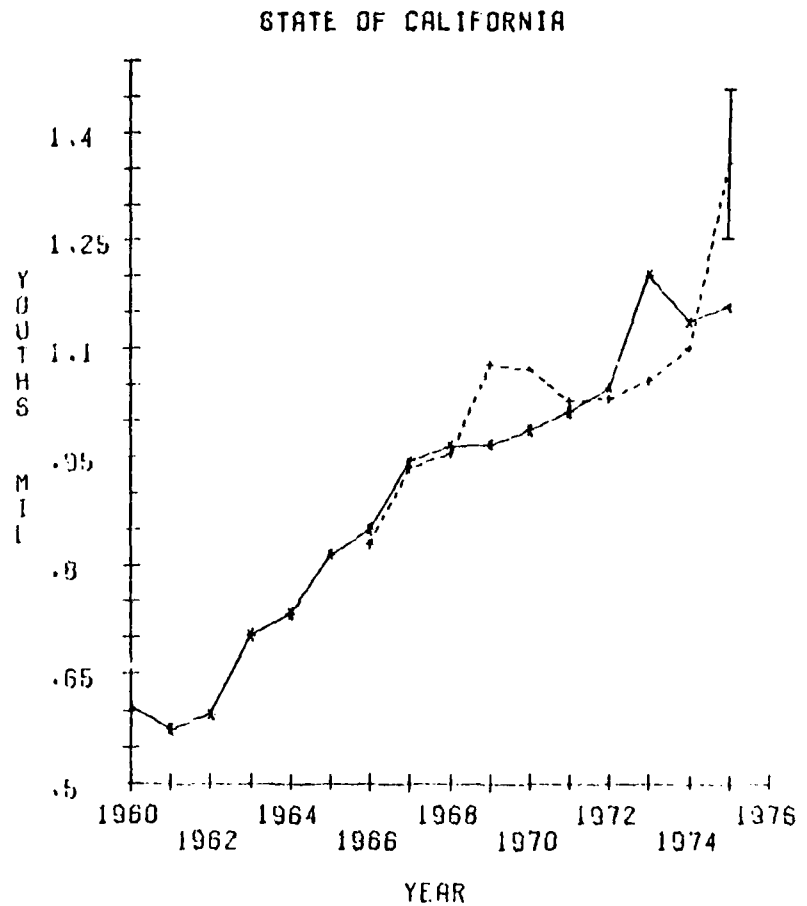
Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	4.37		.605	
1961	3.32		.575	
1962	3.44		.595	
1963	6.93		.704	
1964	7.32		.734	
1965	8.20		.815	
1966	8.71	8.71	.849	.829
1967	9.72	9.84	.944	.935
1968	10.12	10.40	.966	.954
1969	9.92	11.35	.968	1.078
1970	7.61	11.74	.987	1.071
1971	10.36	11.27	1.012	1.027
1972	10.03	8.23	1.046	1.031
1973	10.33	10.34	1.202	1.055
1974	9.02	10.58	1.137	1.099
1975	9.11	10.87	1.157	1.358

Forecast	County	State
Smoothing Type	2	2
Alpha	.462	.667
MAD	1.09	.052
90%± Safety Interval	2.25	.107
Decision Scheme		
Inside Safety Interval	X	
Outside Safety Interval		X
Significant Change	No	

YOUTH POPULATION -- AGES 18 - 20

* ACTUAL
\+ FORECAST





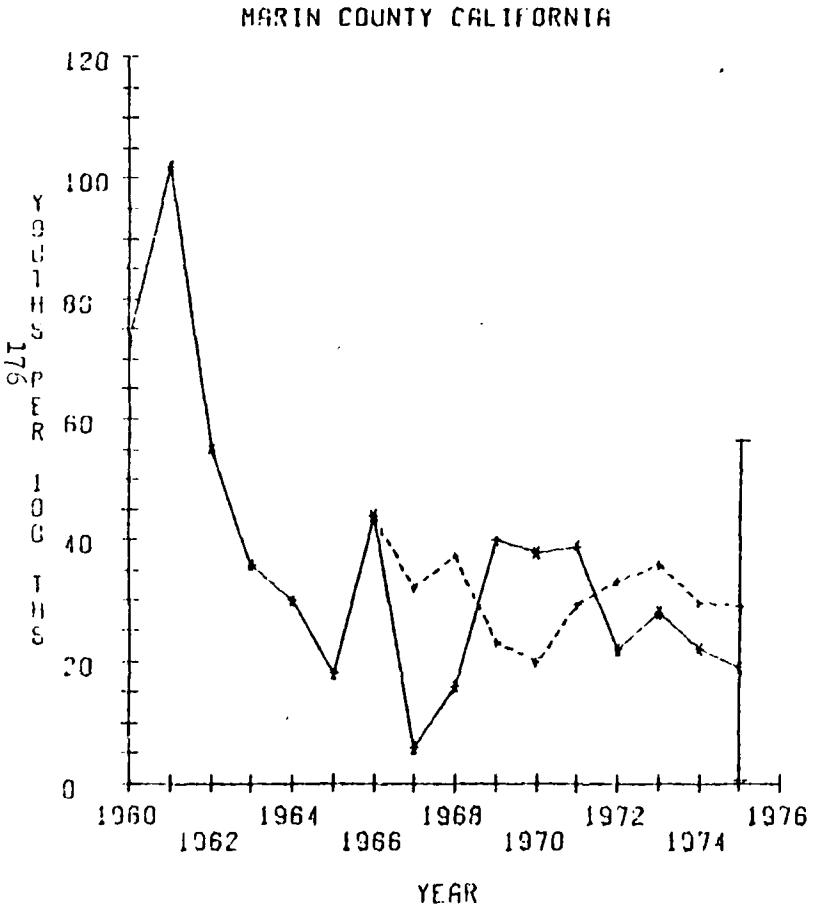
FIRST COMMITMENTS PLACED UNDER YOUTH AUTHORITY RATE PER 100,000 YOUTH POPULATION - JUVENILE

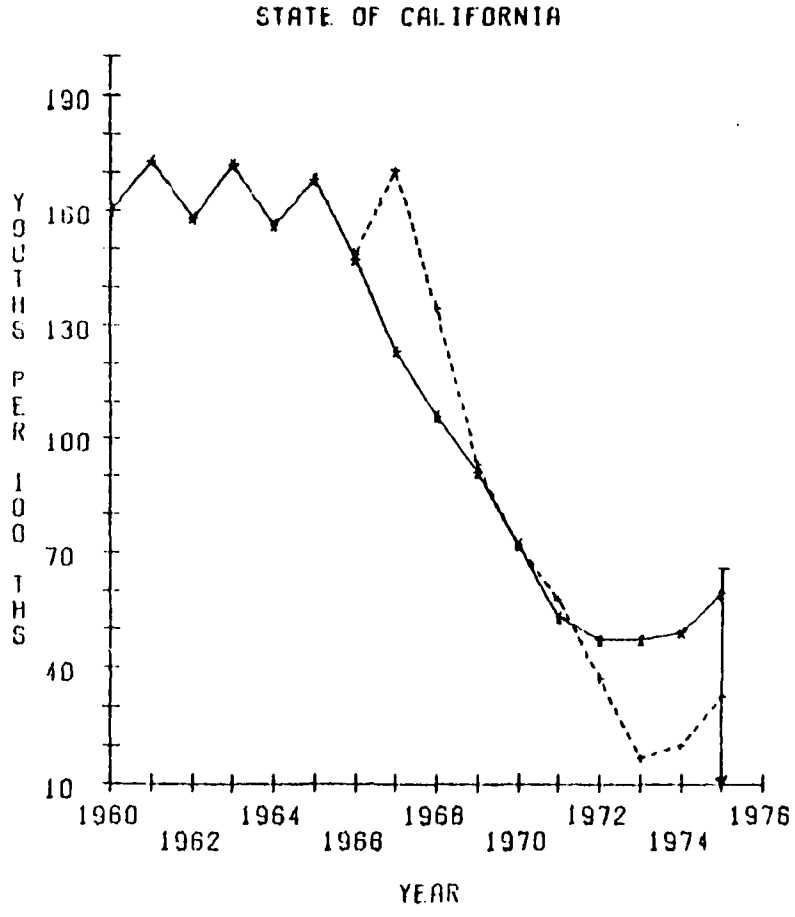
Year	County( )		State( )	
	Actual	Forecast	Actual	Forecast
1960	73		160	
1961	102		173	
1962	55		158	
1963	36		172	
1964	30		156	
1965	18		168	
1966	44	44	147	148.8
1967	6	32.2	123	170.3
1968	16	37.5	106	134.3
1969	40	23.2	91	93.3
1970	38	19.9	72	71.7
1971	39	29.1	53	57.9
1972	22	33.1	47	37.3
1973	28	35.8	47	16.7
1974	22	29.5	49	19.8
1975	19	28.8	59	32.3

Forecast	County	State
Smoothing Type	1	2
Alpha	.455	.667
MAD	13.9	15.6
90%± Safety Interval	28.7	32.2
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

FIRST COMMITMENTS -- JUVENILE

* ACTUAL
+ FORECAST





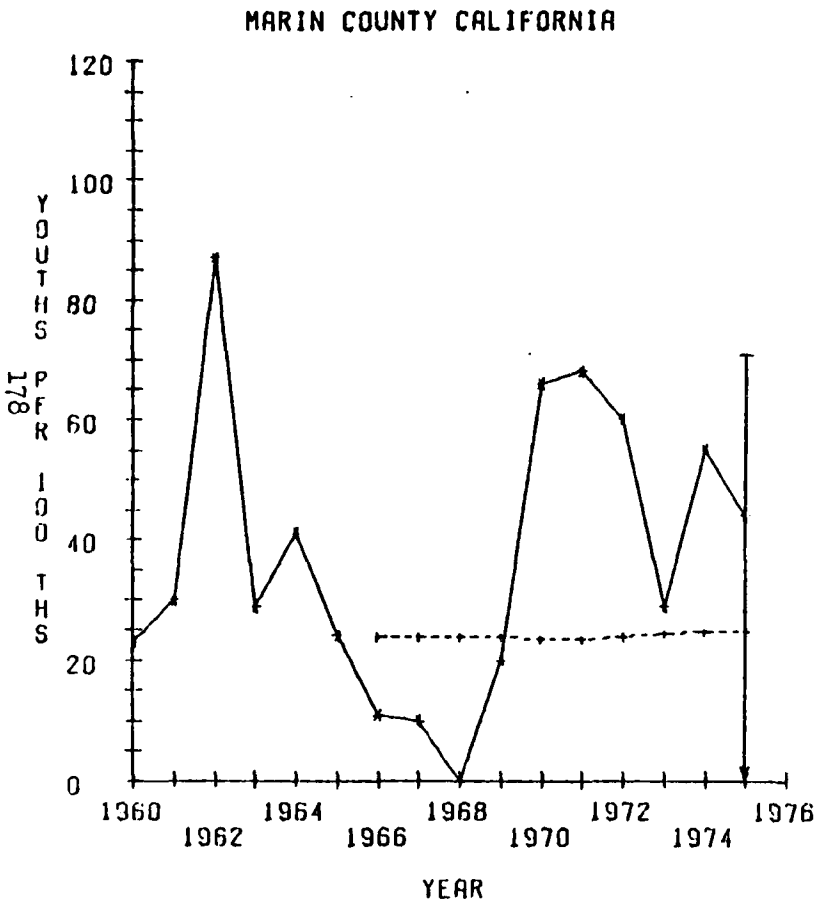
FIRST COMMITMENTS PLACED UNDER YOUTH AUTHORITY RATE PER 100,000 YOUTH POPULATION - CRIMINAL

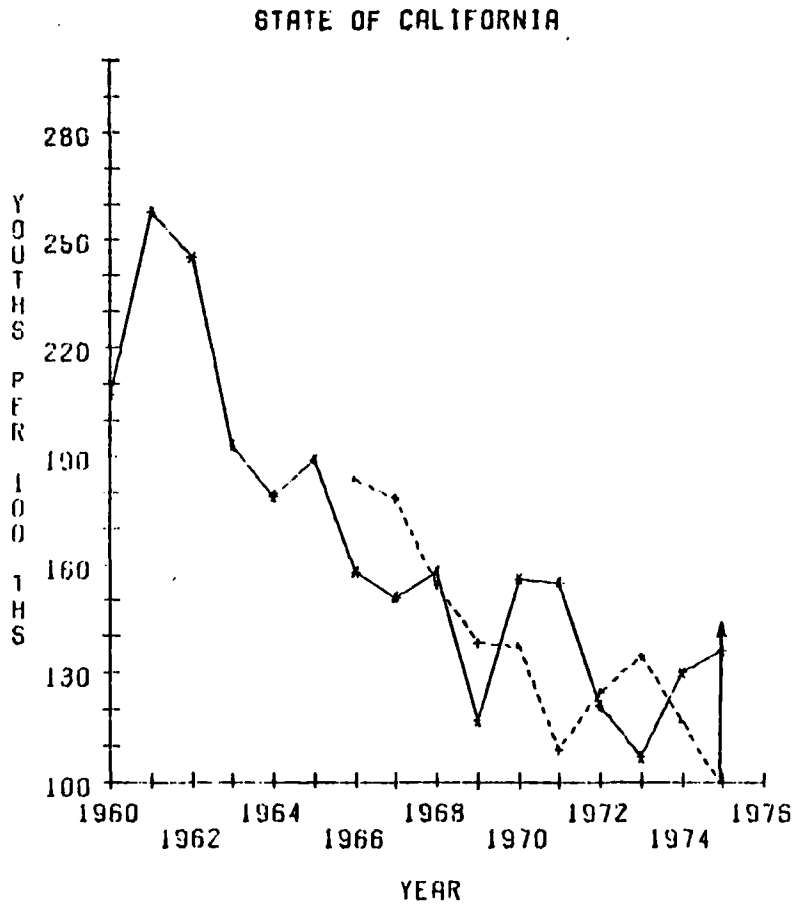
Year	County( )		State( )	
	Actual	Forecast	Actual	Forecast
1960	23		207	
1961	30		258	
1962	87		245	
1963	29		193	
1964	41		179	
1965	24		189	
1966	11	23.9	158	183.6
1967	10	23.9	151	178.3
1968	0	23.8	158	154.3
1969	20	23.7	117	138.3
1970	66	23.4	156	137.1
1971	68	23.4	155	108.8
1972	60	23.8	121	124.7
1973	29	24.3	107	134.5
1974	55	24.6	130	116.4
1975	44	24.7	136	98.2

Forecast	County	State
Smoothing Type	1	2
Alpha	.01	.314
MAD	22.8	21.8
90%± Safety Interval	47	45
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

FIRST COMMITMENTS -- CRIMINAL

x ACTUAL
+ FORECAST





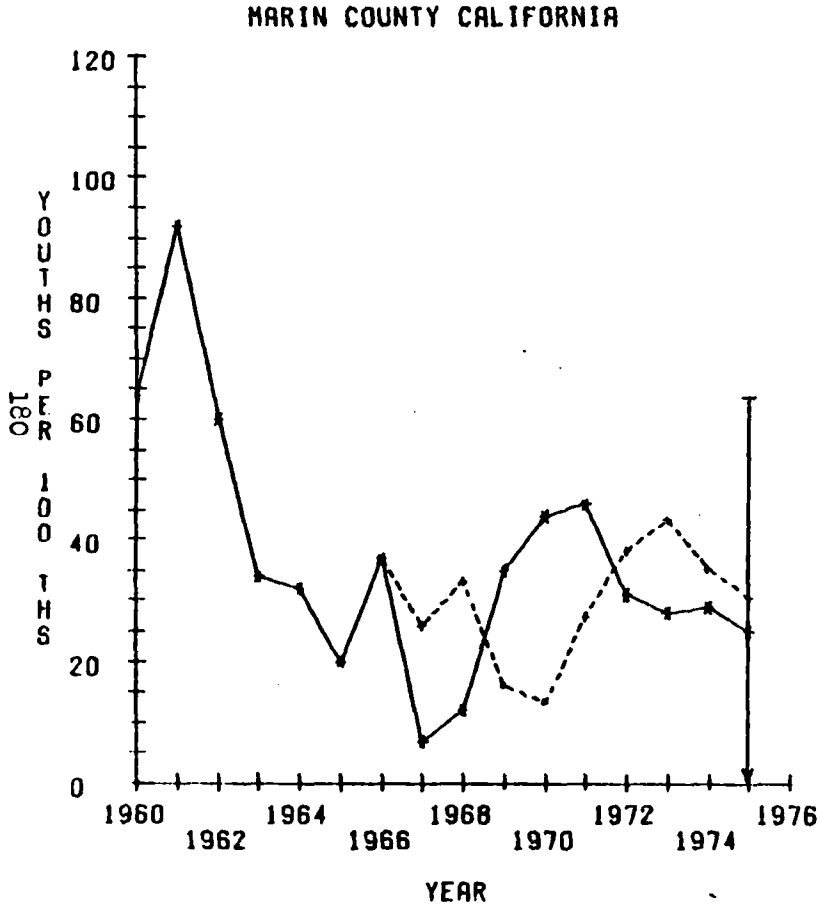
FIRST COMMITMENTS PLACED UNDER YOUTH
AUTHORITY RATE PER 100,000 YOUTH
POPULATION - TOTAL

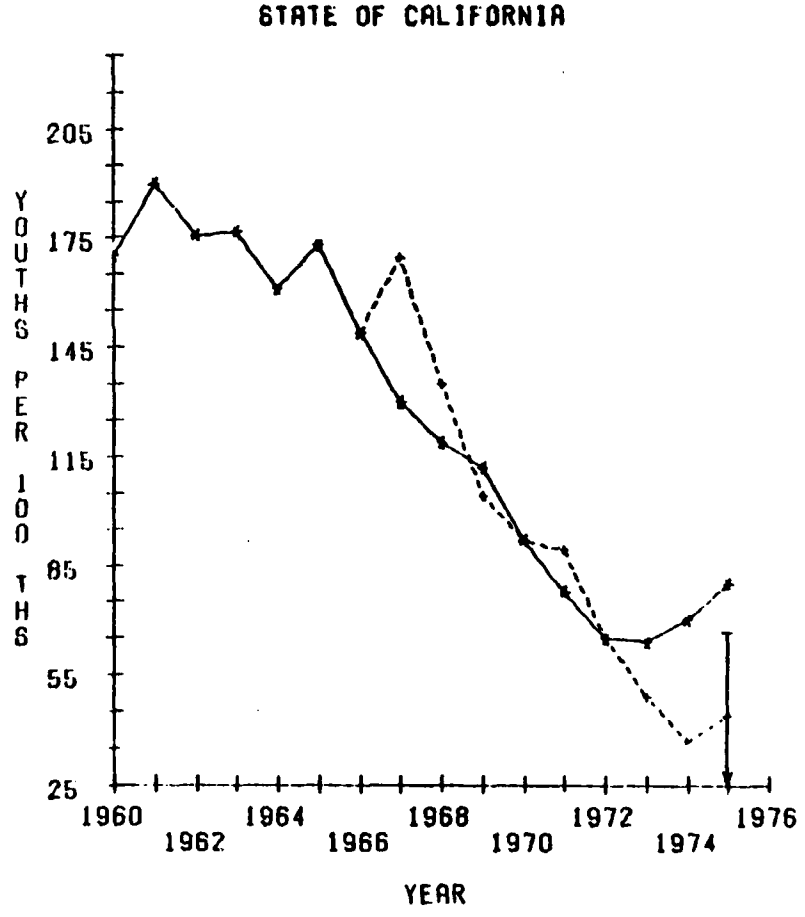
Year	County( )		State( )	
	Actual	Forecast	Actual	Forecast
1960	64		170	
1961	92		190	
1962	60		176	
1963	34		177	
1964	32		161	
1965	20		173	
1966	37	36.8	149	149.1
1967	7	25.9	130	169.7
1968	12	33.1	119	134.9
1969	35	16.1	112	104.4
1970	44	13.4	92	92
1971	46	27.5	78	89.2
1972	31	38.2	65	65.1
1973	28	43.3	64	49.2
1974	29	35.3	70	36.9
1975	25	30.6	80	44.3

Forecast	County	State
Smoothing Type	1	2
Alpha	.650	.621
MAD	16.3	11.2
90%± Safety Interval	33.6	23.1
Decision Scheme		
Inside Safety Interval	X	
Outside Safety Interval		X
Significant Change	No	

FIRST COMMITMENTS -- TOTAL

* ACTUAL
\+ FORECAST





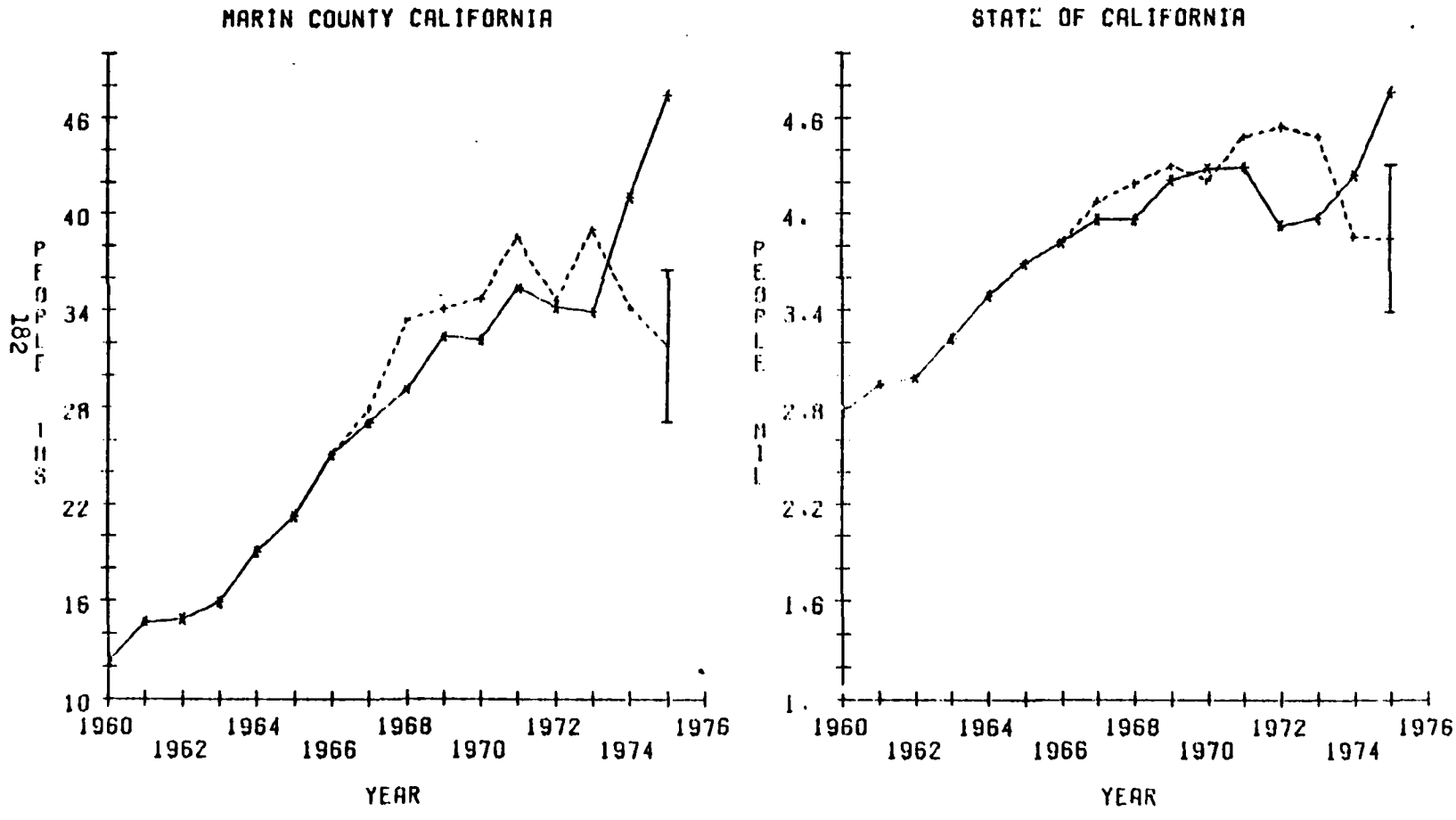
CONVICTIONS FOR VEHICLE CODE VIOLATIONS

Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	12.3		2.71	
1961	14.8		2.94	
1962	14.9		2.98	
1963	15.9		3.23	
1964	19		3.49	
1965	21.3		3.69	
1966	25	25	3.82	3.82
1967	27	27.9	3.96	4.08
1968	29.1	33.4	3.96	4.18
1969	32.4	34.1	4.21	4.29
1970	32.2	34.8	4.28	4.20
1971	35.4	38.6	4.29	4.47
1972	34.2	34.7	3.93	4.54
1973	33.9	39.1	3.98	4.47
1974	41.0	34.2	4.24	3.86
1975	47.4	31.8	4.75	3.85

Forecast	County	State
Smoothing Type	3	2
Alpha	.510	.584
MAD	2.27	.224
90%± Safety Interval	4.68	.462
Decision Scheme		
Inside Safety Interval		
Outside Safety Interval	X	X
Significant Change	Not Determinable	

CONVICTIONS FOR VEHICLE CODE VIOLATIONS

* ACTUAL
\+ FORECAST



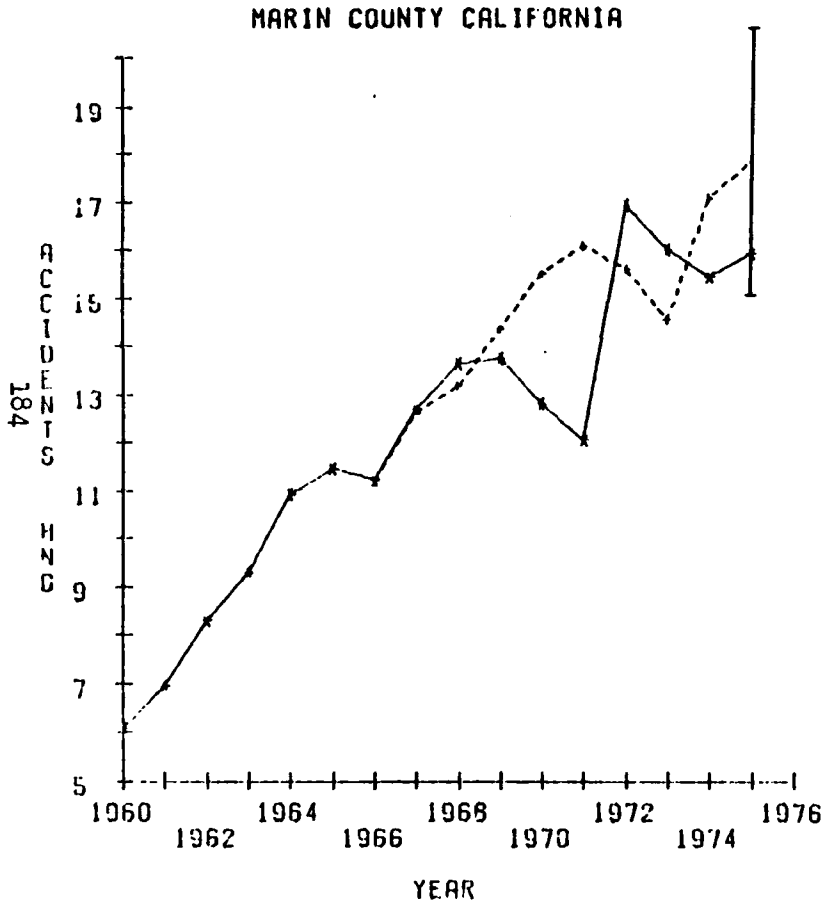
NUMBER OF FATAL AND INJURY ACCIDENTS

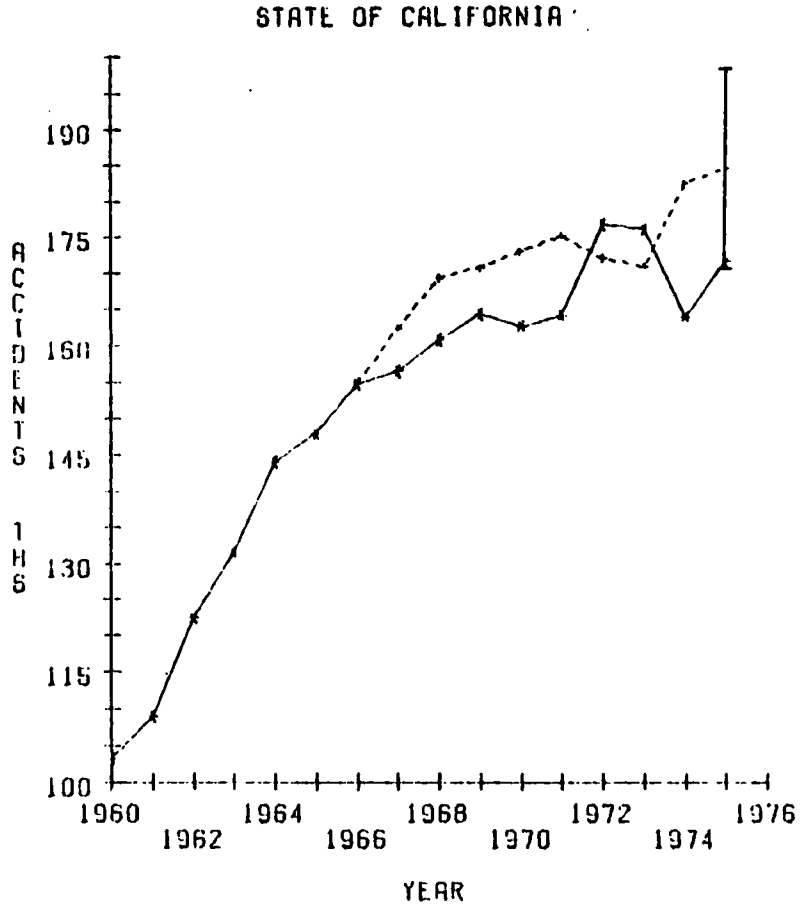
Year	County(HND)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	6.11		103	
1961	6.97		109	
1962	8.30		122	
1963	9.31		132	
1964	10.92		144	
1965	11.45		148	
1966	11.20	11.20	155	155
1967	12.67	12.63	157	162
1968	13.63	13.18	161	169
1969	13.75	14.33	164	171
1970	12.80	15.50	163	173
1971	12.03	16.09	164	175
1972	16.91	15.58	177	172
1973	16.01	14.54	176	171
1974	15.43	17.05	164	182
1975	15.92	17.81	172	184

Forecast	County	State
Smoothing Type	3	2
Alpha	.190	.429
MAD	1.33	6.45
90%± Safety Interval	2.74	13.3
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Ir. erval		
Significant Change	No	

NUMBER OF FATAL + INJURY ACCIDENTS

* ACTUAL
\+ FORECAST





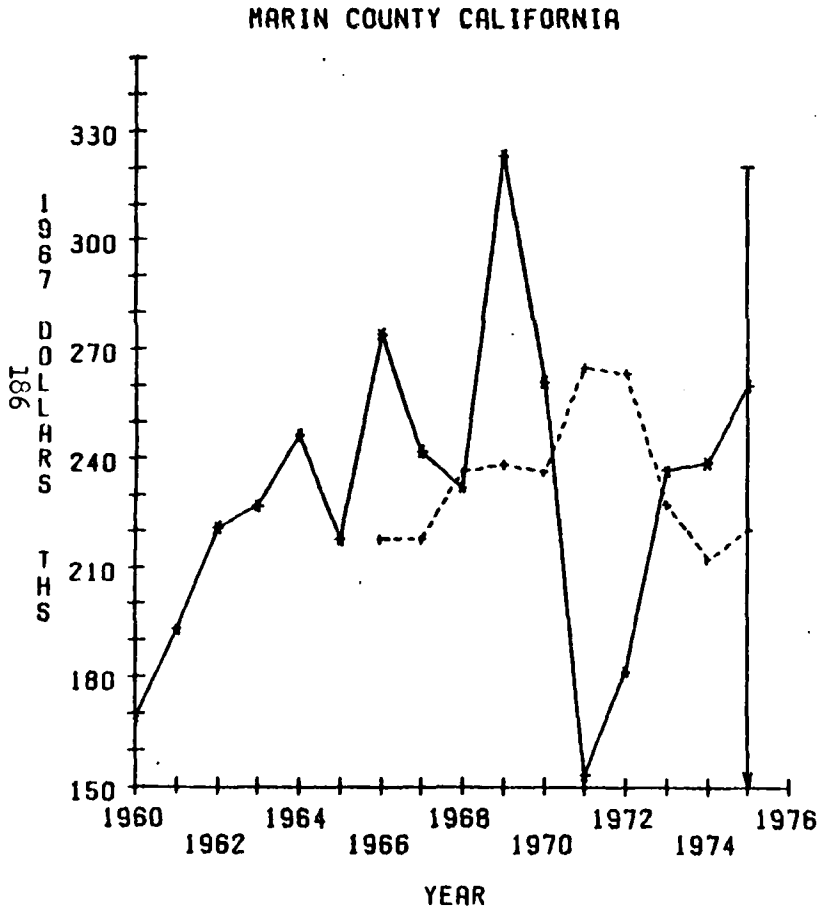
TOTAL GENERAL RELIEF EXPENDITURES

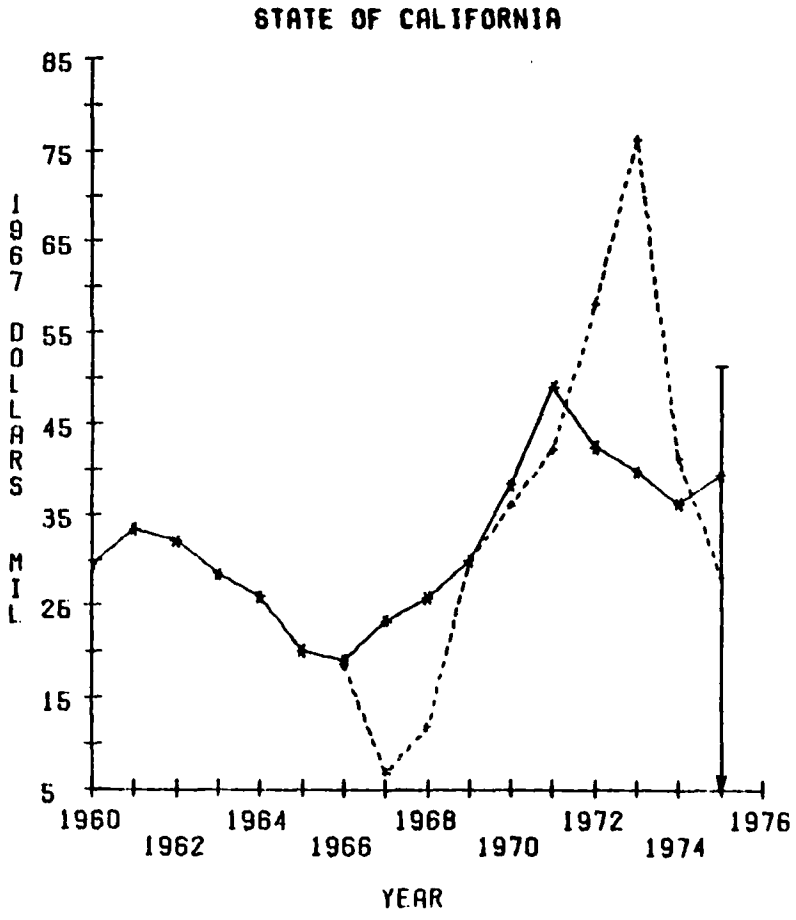
Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	169		29.4	
1961	193		33.4	
1962	221		32.1	
1963	227		28.4	
1964	247		26	
1965	218		20	
1966	274	218	19.1	18.71
1967	242	218	23.4	6.87
1968	232	236	25.9	11.88
1969	324	238	29.9	29.89
1970	261	236	38.3	36.03
1971	154	265	49.1	42.12
1972	182	264	42.4	58.13
1973	237	227	39.7	76.16
1974	239	212	36.1	41.12
1975	260	220	39.3	28.14

Forecast	County	State
Smoothing Type	1	3
Alpha	.332	.576
MAD	49.8	11.5
90%± Safety Interval	103	23.7
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

TOTAL GENERAL RELIEF EXPENDITURES

* ACTUAL
\+ FORECAST





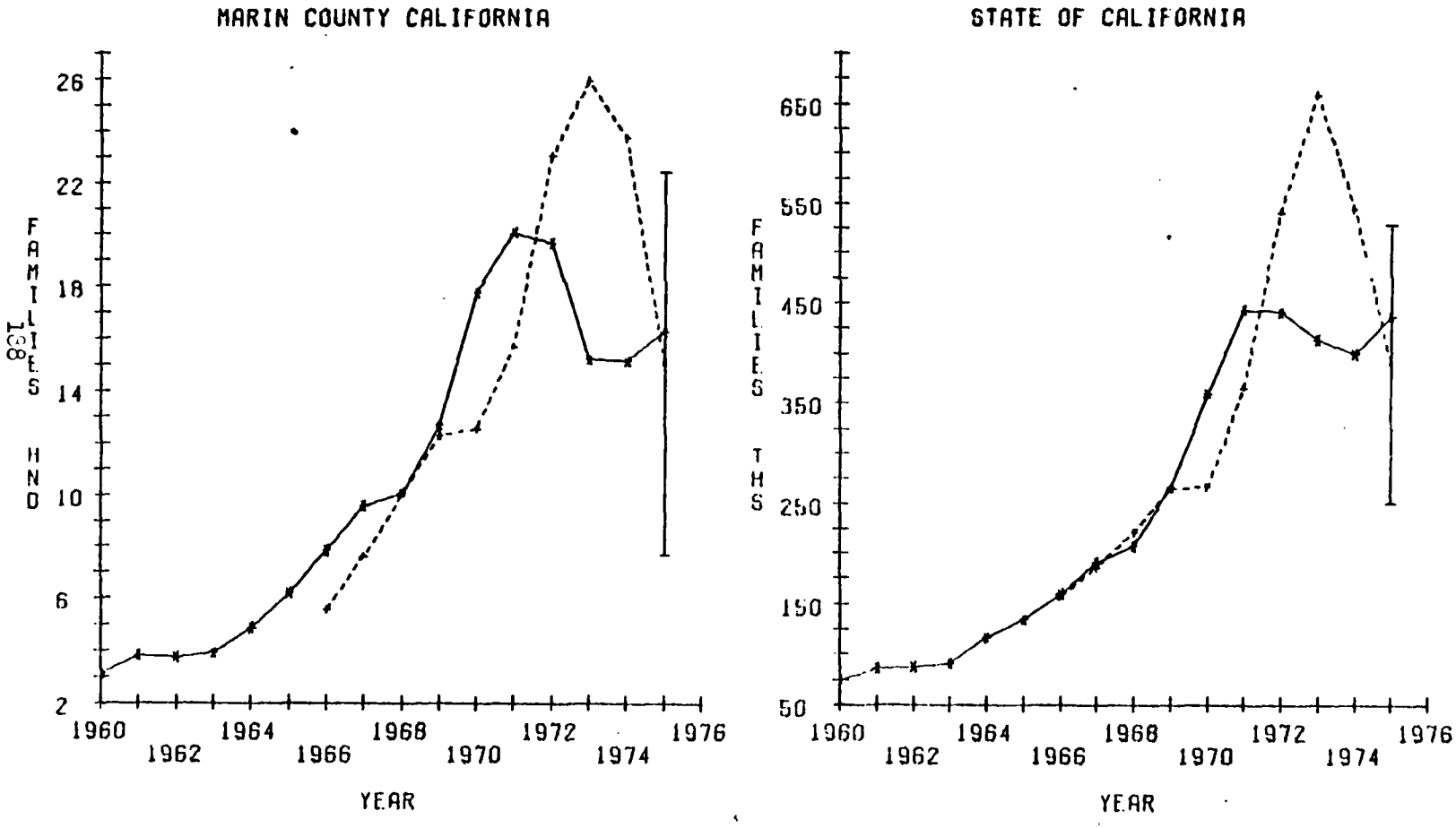
AID TO FAMILIES WITH DEPENDENT CHILDREN
FAMILIES

Year	County(HND)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	3.11		75.2	
1961	3.81		85.9	
1962	3.75		87.5	
1963	3.92		91.2	
1964	4.88		116.4	
1965	6.20		134.3	
1966	7.83	5.59	159.1	158.1
1967	9.53	7.62	190.5	185.8
1968	10.06	9.96	207.1	219.5
1969	12.66	12.22	265.1	263.4
1970	17.74	12.46	359.2	265.8
1971	20.05	15.66	442.5	364.3
1972	19.64	22.97	439.6	539
1973	15.17	25.88	412.3	656.5
1974	15.11	23.66	398.2	542
1975	16.24	14.97	435.8	387.3

Forecast	County	State
Smoothing Type	2	3
Alpha	.595	.514
MAD	3.55	66.0
90%± Safety Interval	7.32	138
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

AID TO FAMILIES WITH DEPENDENT CHILDREN

* ACTUAL
\+ FORECAST



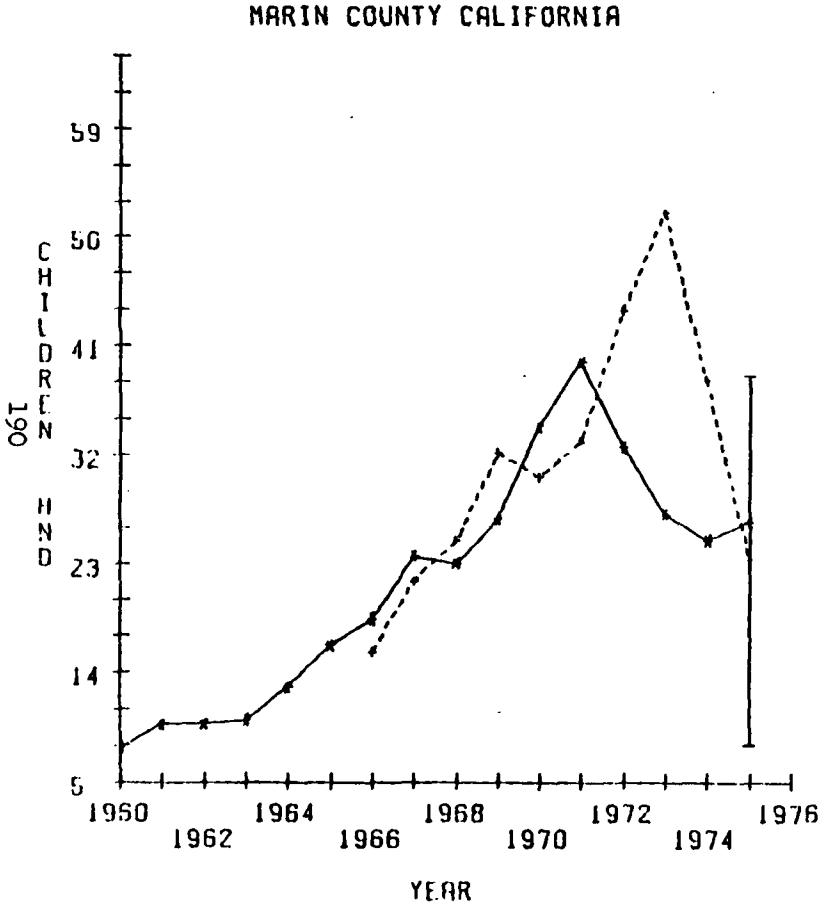
AID TO FAMILIES WITH DEPENDEN" CHILDREN
CHILDREN

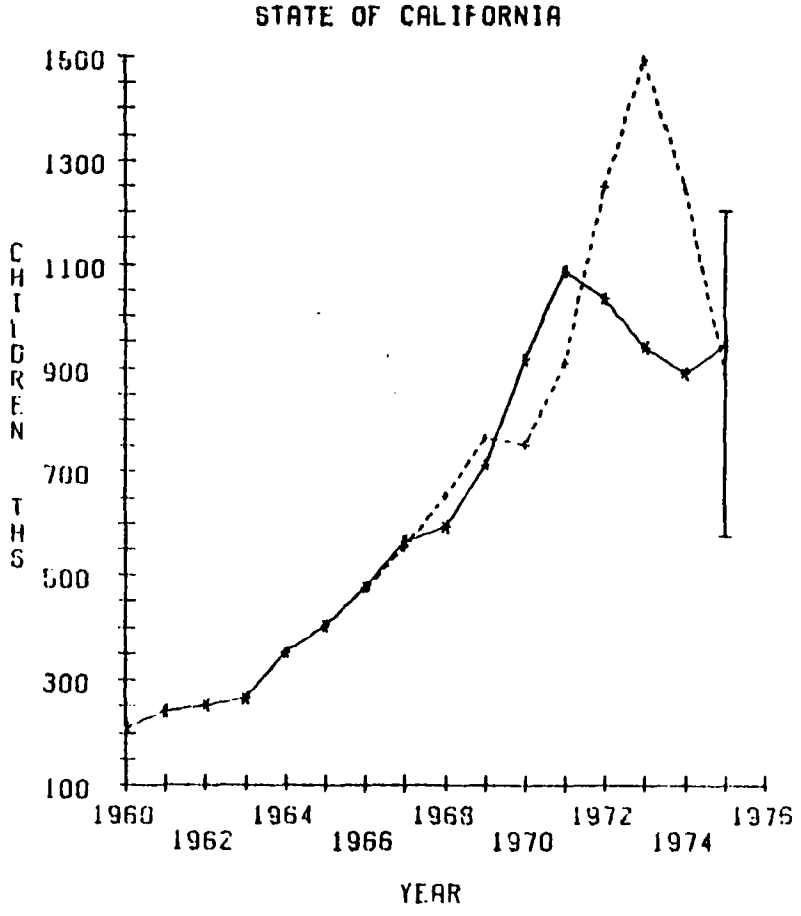
Year	County(HND)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	7.87		209	
1961	9.76		240	
1962	9.75		252	
1963	10.11		265	
1964	12.77		352	
1965	16.25		403	
1966	18.44	15.69	478	473
1967	23.60	21.52	564	554
1968	22.98	24.96	593	654
1969	26.66	32.14	714	766
1970	34.33	30.19	917	752
1971	39.63	33.11	1084	909
1972	32.56	43.94	1031	1246
1973	27.06	51.98	937	1491
1974	24.90	38.24	888	1242
1975	26.34	23.18	941	887

Forecast	County	State
Smoothing Type	3	3
Alpha	.390	.455
MAD	7.4	154
90%± Safety Interval	15.3	319
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

AID TO FAMILIES WITH DEPENDENT CHILDREN

* ACTUAL
\+ FORECAST





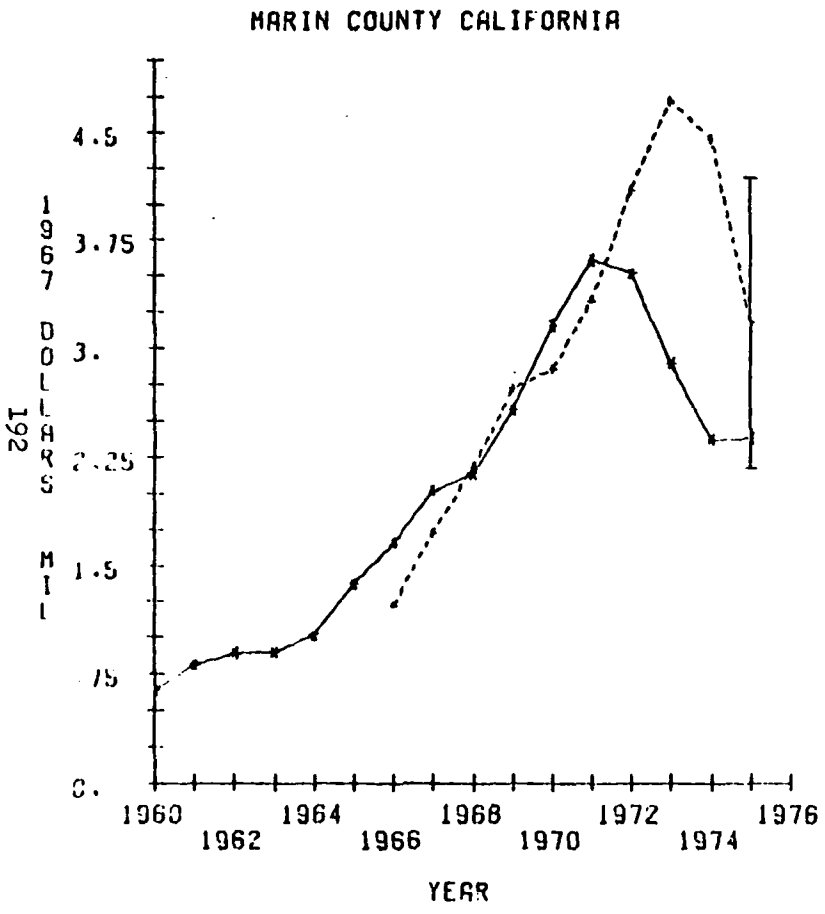
AID TO FAMILIES WITH DEPENDENT CHILDREN
EXPENDITURES

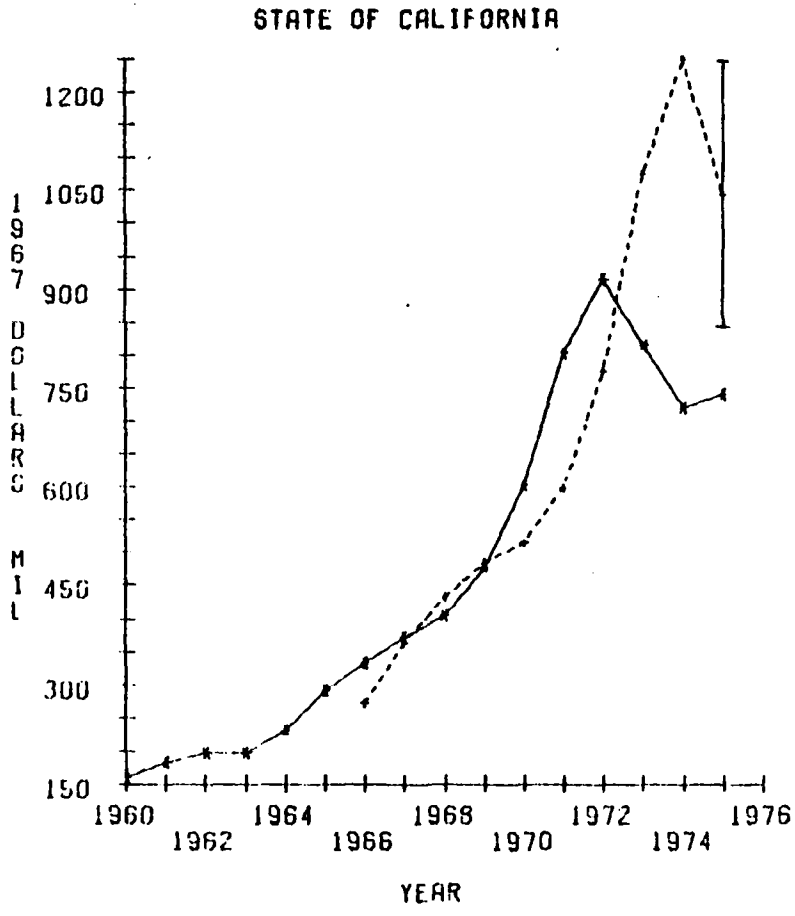
Year	County(MIL)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	.635		160	
1961	.812		183	
1962	.893		197	
1963	.898		197	
1964	1.012		231	
1965	1.366		290	
1966	1.650	1.225	332	271
1967	2.016	1.720	372	363
1968	2.130	2.188	404	432
1969	2.571	2.715	477	484
1970	3.152	2.848	602	514
1971	3.608	3.322	801	598
1972	3.514	4.084	913	773
1973	2.892	4.702	812	1072
1974	2.365	4.432	719	1245
1975	2.373	3.163	739	1041

Forecast	County	State
Smoothing Type	3	3
Alpha	.355	.368
MAD	.49	99.4
90%± Safety Interval	1.01	205
Decision Scheme		
Inside Safety Interval	X	
Outside Safety Interval		X
Significant Change	No	

AID TO FAMILIES WITH DEPENDENT CHILDREN

* ACTUAL
\+ FORECAST





AID TO FAMILIES WITH DEPENDENT CHILDREN
BOARDING HOMES AND INSTITUTIONS
CHILDREN

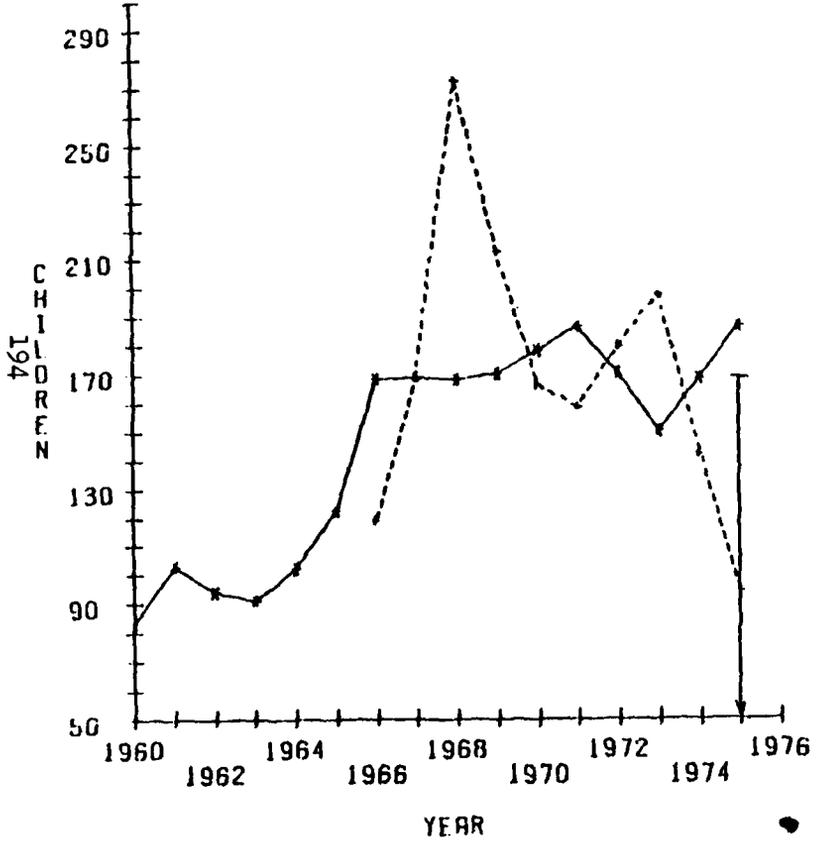
Year	County( )		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	83		12.9	
1961	103		14.5	
1962	94		14.8	
1963	91		16.4	
1964	102		18.1	
1965	122		20.1	
1966	168	119	22.3	23.2
1967	169	168	25.6	25.2
1968	168	272	28	27.9
1969	170	212	31.3	33.2
1970	178	166	33.3	34.1
1971	186	158	34.6	38.6
1972	170	180	33.6	37.5
1973	150	197	30.9	36.4
1974	168	141	31.4	29.4
1975	186	94	30.2	21.8

Forecast	County	State
Smoothing Type	3	3
Alpha	.594	.66666
MAD	36.6	2.2
90%± Safety Interval	75.5	4.54
Decision Scheme		
Inside Safety Interval		
Outside Safety Interval	X	X
Significant Change	Not Determinable	

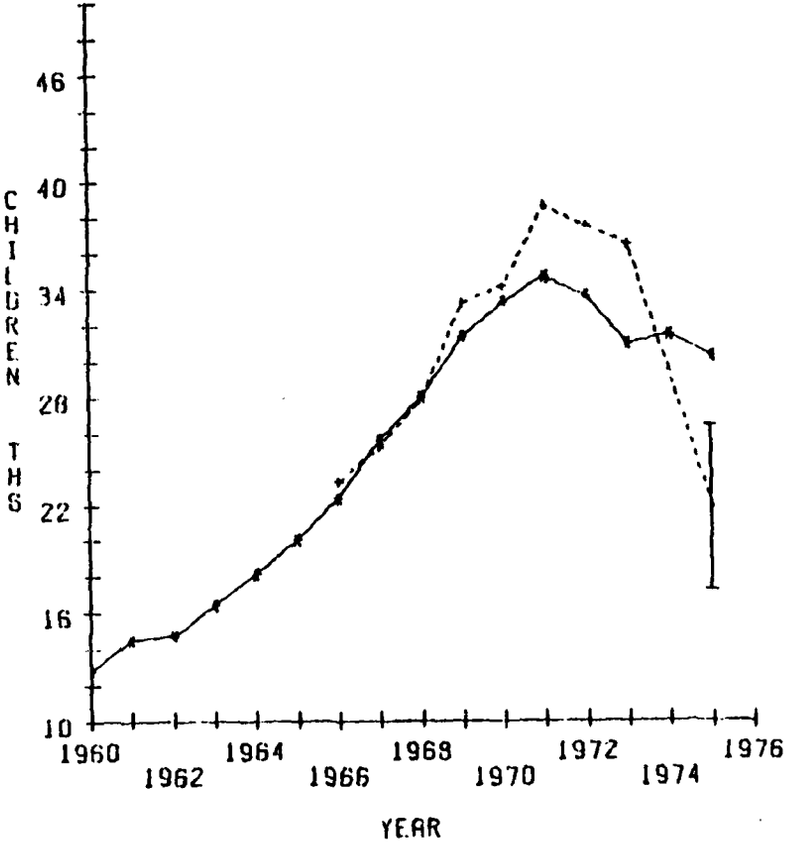
AID TO FAM W/DEP CHILD.BOARDING HOMES + INST

* ACTUAL
\+ FORECAST

MARIN COUNTY CALIFORNIA



STATE OF CALIFORNIA



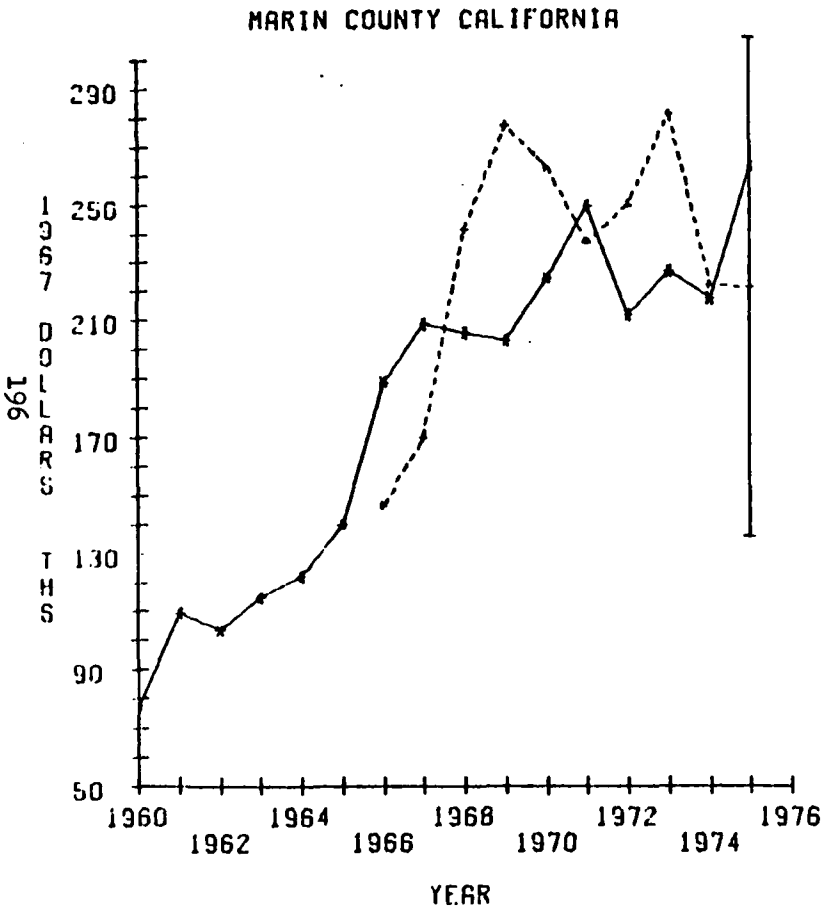
AID TO FAMILIES WITH DEPENDENT CHILDREN
BOARDING HOMES AND INSTITUTIONS
EXPENDITURES

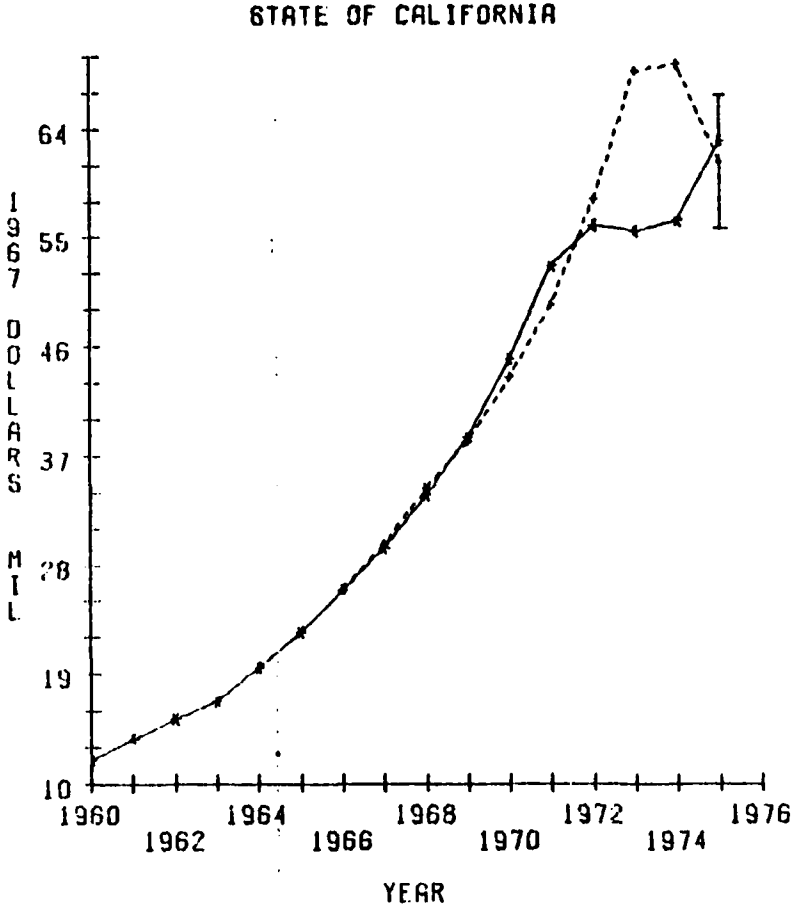
Year	County(THS)		State(MIL)	
	Actual	Forecast	Actual	Forecast
1960	77		11.9	
1961	109		13.7	
1962	103		15.3	
1963	115		16.7	
1964	122		19.5	
1965	140		22.4	
1966	188	146	25.9	25.8
1967	208	169	29.3	29.6
1968	205	241	33.6	34.2
1969	202	277	38.4	38
1970	224	262	44.8	43.3
1971	249	237	52.5	49.2
1972	211	249	55.8	57.9
1973	226	281	55.4	68.5
1974	217	222	56.2	69.1
1975	262	221	62.8	61

Forecast	County	State
Smoothing Type	3	3
Alpha	.365	.469
MAD	41.8	2.67
90%± Safety Interval	86.2	5.51
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

AID TO FAM W/DEP CHILD.BOARDING HOMES + INST

* ACTUAL
\+ FORECAST





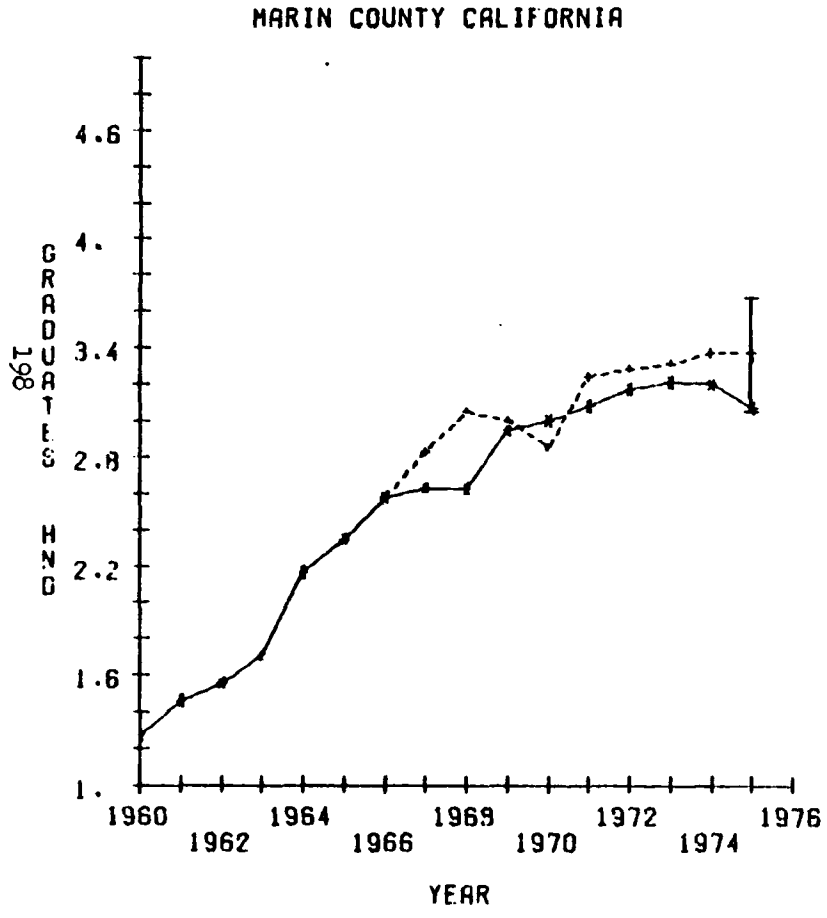
NUMBER OF PUBLIC HIGH SCHOOL GRADUATES

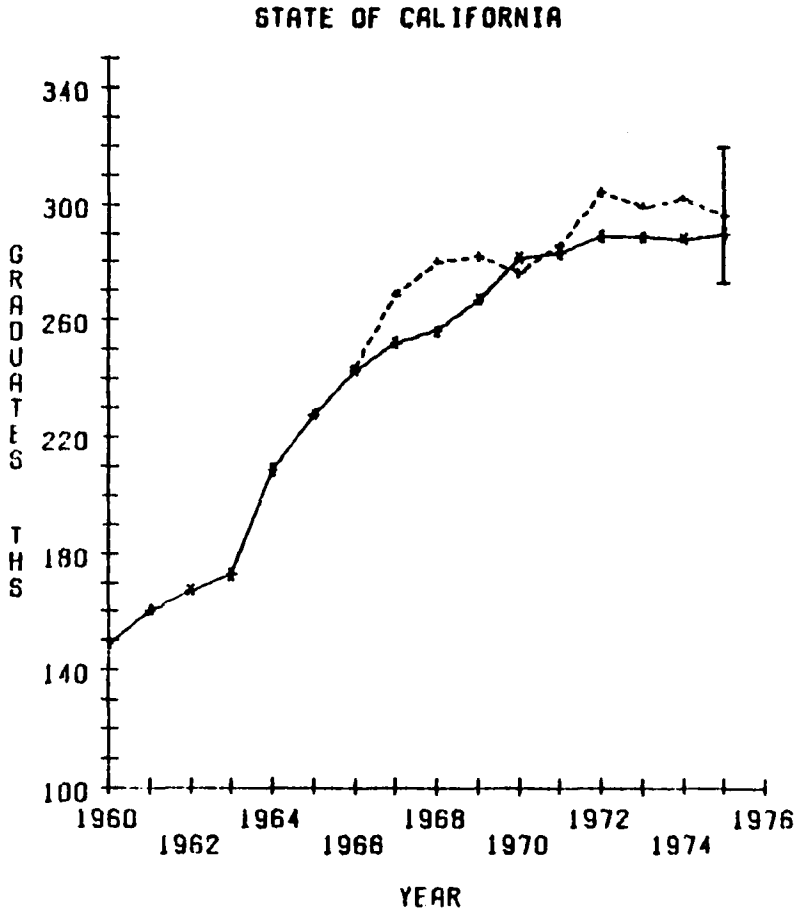
Year	County(HND)		State(THS)	
	Actual	Forecast	Actual	Forecast
1960	1.27		149	
1961	1.46		160	
1962	1.56		167	
1963	1.71		173	
1964	2.16		209	
1965	2.35		228	
1966	2.58	2.58	243	244
1967	2.63	2.83	252	269
1968	2.63	3.05	256	280
1969	2.95	3	267	282
1970	3	2.86	281	276
1971	3.08	3.24	283	285
1972	3.17	3.29	289	303
1973	3.21	3.32	288	299
1974	3.20	3.37	287	301
1975	3.07	3.37	289	295

Forecast	County	State
Smoothing Type	2	2
Alpha	.599	.6666
MAD	.15	11.1
90%± Safety Interval	.309	22.9
Decision Scheme		
Inside Safety Interval	X	X
Outside Safety Interval		
Significant Change	No	

NUMBER OF PUBLIC HIGH SCHOOL GRADUATES

* ACTUAL
\+ FORECAST





APPENDIX D

HISTORY OF HAMILTON AIR FORCE BASE, CALIFORNIA

A bill introduced into Congress on 3 July 1930, by Representative Florence B. Kahn of San Francisco and signed into law by President Herbert Hoover, authorized construction of an air field at Marin Meadows. On 28 May 1931 the air base was named Hamilton Field in honor of 1st Lieutenant Lloyd A. Hamilton who lost his life in August 1918 while leading a low bombing attack over enemy territory in Belgium.

With the donation of 937 acres of land by the citizens of San Francisco and Marin County, the deed for Hamilton Field was accepted by the Army on 17 March 1932. The first troops, the 70th Service Squadron of the 7th Bombardment Group, arrived at Hamilton on 2 December 1933 from March Field. A year later, on 1 December, the 7th began its move to establish a permanent station there.

On 12 May 1935 the first air-to-ground radio contact in Army Air Corps history was made at Hamilton Field. On the same day Brigadier General Henry H. "Hap" Arnold was guest speaker at dedication ceremonies of the base.

After serving as a bomber base from its activation, Hamilton Field became a fighter base in September 1940 with the arrival of two groups of P-36 and P-40 pursuit planes. Composed of about 1700 personnel and 170 aircraft, the two

groups--the 20th and 35th Pursuit Groups--and the 82nd Observation Squadron made up the 10th Pursuit Wing. Until their departure from the base in 1942, the mission of the two groups was to provide defense of the West Coast and train transient aircrews. The base also served as an overseas staging area.

Hamilton Field was one of the first Continental United States bases to feel the effects of World War II, when B-17 "Flying Fortresses" from the 7th Bombardment Group enroute overseas from Hamilton arrived at Pearl Harbor as it was being attacked by the Japanese in December 1941.

During the first six months of 1942, fighter strength at Hamilton was increased considerably with the arrival in June of the newly activated 78th Fighter Group from Baer Field, Indiana. The 78th, with its three squadrons of twin-motored Lockheed P-38 "Lightnings," was composed of the 82nd, 83rd, and 84th Fighter Squadrons. The 78th carried out extensive training at Hamilton Field until November 1942 when it was moved to the East Coast to await shipment to the European theater.

In July 1942, the 328th Fighter Group, equipped with Bell P-39 "Aircobras," was activated at Hamilton Field. The group was discontinued at the base in March 1944.

The Fourth Air Force moved its headquarters from San Francisco to Hamilton Field on 19 June 1946. Command

of the base passed from the Fourth Air Force on 1 August 1950 to the Western Air Defense Force. The Fourth Air Force was inactivated in September 1960.

The 325th Fighter Group and its 317th and 318th Fighter Squadrons, equipped with P-61 "Black Widows," arrived at the base on 2 December 1947 from Mitchel AFB, New York. To strengthen the defenses in the Pacific Northwest, the 325th and 317th moved to Moses Lake, Washington, and the 318th to McChord AFB, Washington, on 26 November 1948.

A cycle was completed on 16 November 1948 when the 78th Fighter Wing was activated at Hamilton with the same three tactical squadrons, 82nd, 83rd, and 84th, it had when the original 78th departed for Europe in 1942. The 78th Wing was redesignated a Group and inactivated in February 1952.

Headquarters, 28th Air Division was established at Hamilton Air Force Base on 8 December 1949 and remained there until it was moved to Malmstrom AFB, Montana, on 31 March 1966. Concurrently, the Fourth Air Force was reactivated at Hamilton on 1 April and remained on the base until September 1969 when it was again discontinued.

The 78th Fighter Group was reactivated on 18 August 1955 with the 82nd Fighter-Interceptor Squadron at Travis Air Force Base, the 83rd and 84th Fighter-Interceptor Squadrons at Hamilton, and the 456th Fighter-Interceptor

Squadron at Castle Air Force Base under its command. The squadrons of the group were transferred to the 78th Fighter Wing upon its activation in October 1956 and the group was inactivated in February 1961. The 78th Fighter Wing was discontinued in December 1969, and its only squadron left at Hamilton--the 84th FIS--came under the 1st Fighter Wing which had moved from Selfridge AFB, Michigan. The 1st Fighter Wing was reassigned to the Tactical Air Command in October 1970.

In 1959, after the F-101 Voodoos and the F-104 Starfighters became operational, a new chapter in the annals of the Air Defense Command installation opened.

With the inactivation of the Western Air Defense Force on 1 July 1960 and the conversion of the 28th Air Division to a SAGE unit, the F-104 aircraft were transferred from Hamilton, thus making this strategic base the home of the F-101B Voodoo, supersonic interceptor.

On 1 August 1961 the 28th NORAD Region was activated at Hamilton Air Force Base. The name of the Region was changed in April 1966 to the Western NORAD Region. The Region moved to Richards-Gebaur Air Force Base, Missouri, on 15 September 1969.

The 84th Fighter-Interceptor Squadron converted from F-101 to F-106 Delta Dart aircraft in September 1968. In May 1972 the 84th FIS was the only tactical squadron stationed at Hamilton Air Force Base.

The 84th FIS moved from Hamilton AFB to Castle AFB on 1 September 1973.

GLOSSARY

Natural and Physical Environmental Factor - Portion of the total environment relating to things produced by nature or constructed by man.

Economic Environmental Factor - Portion of the total environment relating to the economic activity associated with the everyday activities of man.

Social Environmental Factor - Portion of the total environment relating to the social activity associated with the everyday activities of man.

Neighboring Community - The area around the base which is influenced by the base's existence. The county of Marin is the neighboring community of Hamilton AFB, California.

Environmental Factor Indicators - Variables comprising each environmental factor that can be quantifiably measured and analyzed for changes due to different outside influences.

Forecasting - An estimate of what future observations will be if the underlying process continues as it has in the recent past (5:4).

Safety Interval - A range of values which represents in terms of probability or chance the likelihood that the actual data point will take on a value in the specified range (6).

Mean Absolute Deviation (MAD) - A scatter measurement of the data around the mean. For a normal distribution, the MAD is proportional to the standard deviation by the rates of 0.8 to one (5:281).

Normal K Safety Factor - The amount the forecast exceeds the actual observation divided by the MAD of the normally distributed forecast errors (16:286).

Forecast Data Point - Data point value derived after the TCAST computer program has been applied to the series of actual data points from 1960 through 1973.

Actual Data Point - Data point values corresponding to environmental factor indicator measurements for each year from 1960 through 1975.

Significant Change - Effect which happens when the actual data point for an environmental factor indicator does not fall within the forecast data point safety interval.

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